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PRODUCES QUALITY GASOLINE

Facts from performance

Balance Your Refinery

The Jenkins Process profitably produces Quality Gasoline from a wide range of charging stocks.

A refinery with the Jenkins Cracking Process has a flexibility of choice of charging stocks to meet market changes.

Only liquid products of marketable specifications are produced.

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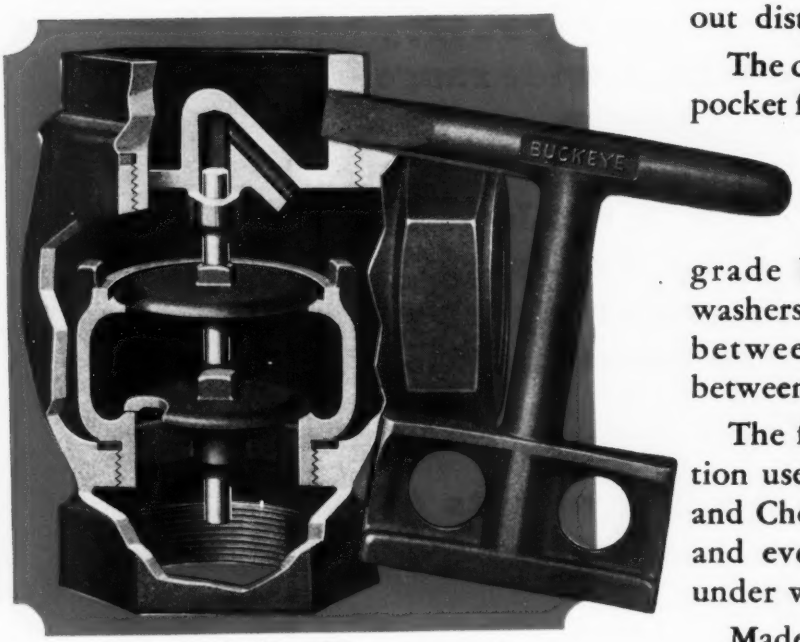
A Double Check in Your Pipe Line

EVERY oil man will immediately appreciate the importance of having a double check in a pipe line.

Then there is an additional feature which the Buckeye Double Poppet Angle Check Valve gives. Its discs and seats can easily be removed *without disturbing the pipe or unions.* Just think what that means!



Double Poppet Angle Check Valve

If the seats or discs become scratched the cap can easily be removed as a specially selected washer is used to seal the joint between the cap and body. The inner housing with the disc can then be unscrewed, lifted out of the valve body, relapped and replaced or a new disc and seat assembly installed, and this can be done without disturbing your pipe line.

The cap is designed to prevent an air pocket forming in the top of the valve.

The body of the valve is galvanized iron, the cap, discs and housing are high grade bronze. Specially selected washers are used to seal the joints between the cap and body and between the housing and body.

The flat disc and flat seat construction used on *all* Buckeye Foot Valves and Check Valves is used on this valve and every valve is given an air test under water before shipment is made.

Made in 1½" and 2" sizes.

Buckeye Iron & Brass Works
356 E. Third St. Dayton, Ohio
Manufacturers of Quality Brass Goods since 1860

Buckeye Iron & Brass Works
356 E. Third St.,
Dayton, Ohio.

Please send catalog describing your Double Poppet Angle Check Valve and other BUCKEYE Service Station Equipment.

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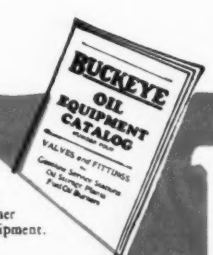
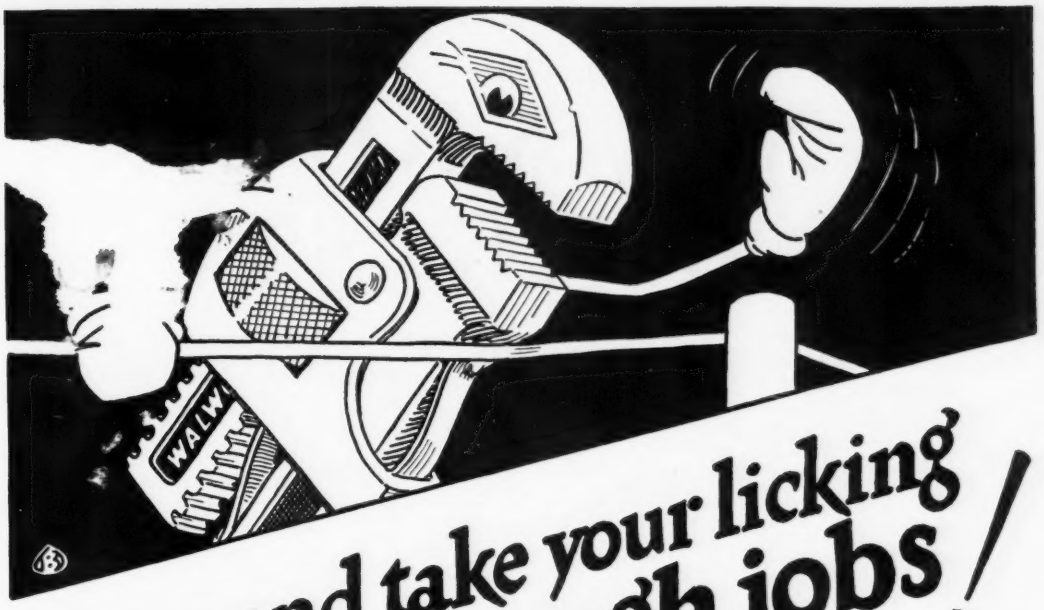
*Address*_____

City _____



BUCKEYE



Come and take your licking — you tough jobs!

50% stronger than ever before

The man who tackles any pipe job with a new Walworth Master Stillson has enough brute strength in his two hands to break the tightest joint that ever stuck. Jobs that make other wrenches curl up and quit are easy pickings for the tougher jaw, the stronger teeth, and the tremendous leverage of this new Stillson.

You can put more than 1200 pounds of turning strain on the red handle of a 14-inch Master Stillson and never even bend it. (But be careful how you try the same stunt with some other kind of wrench.)

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Walworth Company, General Sales Offices: 51 East 42nd St., New York
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MASTER STILLSON

TRADE MARK STILLSON REGISTERED U.S. PATENT OFFICE

ANTI-KNOCK BLENDING STOCK

Wickett 50-52 Naphtha

Engler Distillation

I. P.	Under	140° F.
17%	@	221° F.
45%	@	284° F.
90%	@	392° F.
E. P.	Under	430° F.
Recovery		98%
Dr. Test		Negative
Color		W. W. and Sun Stable
Odor		Good

BENZOL EQUIVALENT by Motor Test—35%

This stock only requires 10% of natural gasoline to make it meet all U. S. motor distillation points. The natural gasoline market is favorable and will continue so, thus, blending produces a finished product that costs less than U. S. motor, which can be sold at a premium, due to its high Anti-Knock and general performance value. This stock is ideal for benzol blenders.

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Wickett Refining Co.
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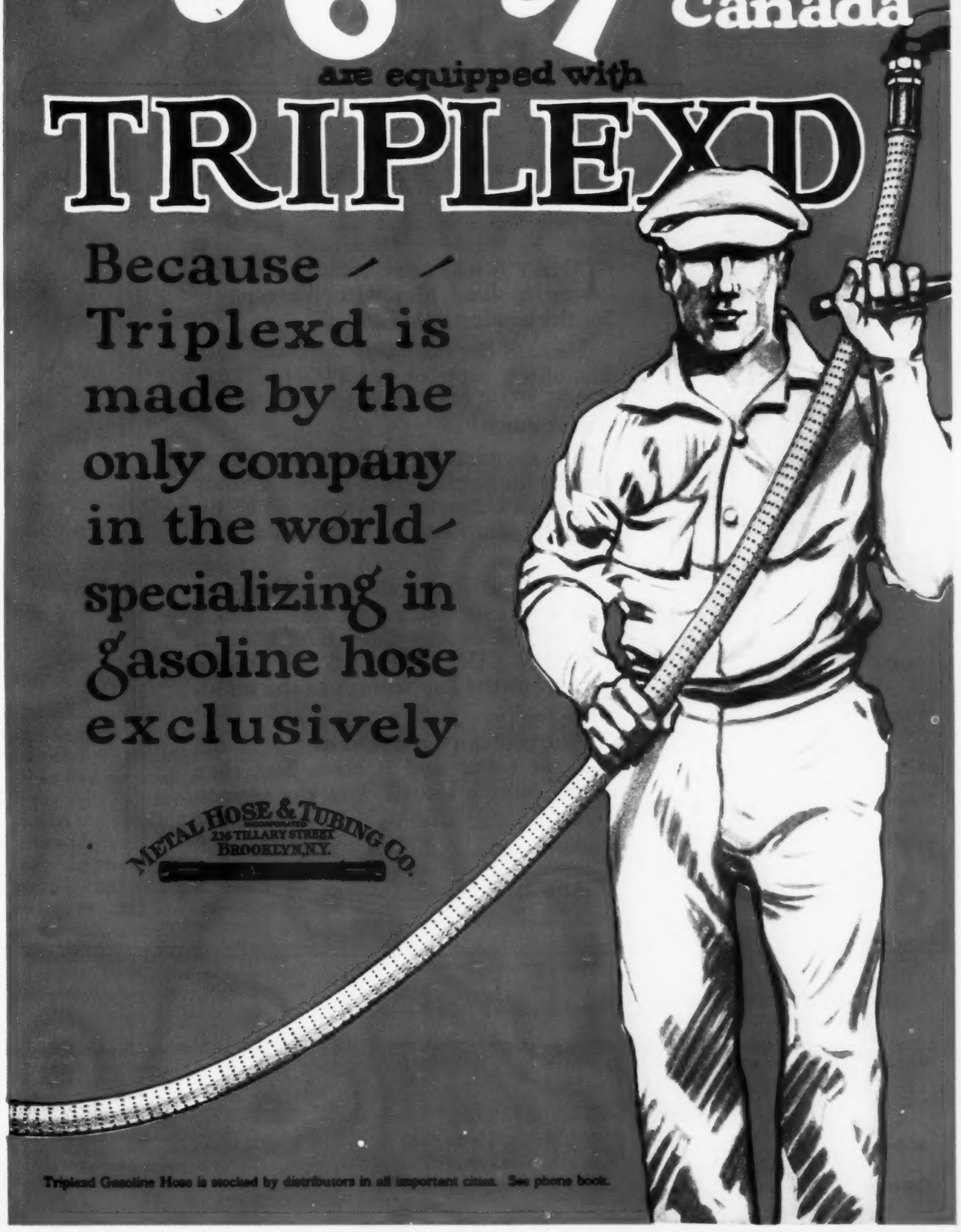
GENERAL OFFICES—ATLAS BUILDING—TULSA, OKLA.

Why 6 out of every 7 pumps in the U.S. & Canada

are equipped with

TRIPLEXD

Because / / Triplexd is made by the only company in the world specializing in gasoline hose exclusively



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Triplexd Gasoline Hose is stocked by distributors in all important cities. See phone book.

52 Nails and a Hammer

THAT'S what one subscriber asked us to send him with his renewal for the coming year.

He said the only way he could keep his office copy of NATIONAL PETROLEUM NEWS on his desk was to *nail it down!*

We suggested that he have a copy sent to his home, where he could study the week's developments in oil at his leisure. That solved the problem for him.

Incidentally, there's a good suggestion in this for every man who depends on the "office copy" of NATIONAL PETROLEUM NEWS to keep abreast of the happenings in the oil industry.

You, too, can have your own personal copy at home and it costs *less than seven cents a week.* Use the coupon below.

NATIONAL PETROLEUM NEWS
742 Penton Bldg., Cleveland, Ohio

I have decided to have my own copy of NATIONAL PETROLEUM NEWS each week. Send me the next 52 issues at the address below. Attached is $3.50. (Foreign $5)

NAME.....

Address.....City.....

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Do you BUY this or this ?

Only properly refined, *pure* gasoline has Color Stability. A poorly refined gasoline, when exposed to the sunlight will show—

1. A *milky appearance.*
2. A *yellow color.*
3. *Yellow, brown or black deposit that is not soluble in gasoline.*
4. A *disagreeable odor.*

These impurities seriously affect its sale-ability and performance. Gasoline without Color Stability looks bad in your pump bowls. It deposits a gum on the screens and in the gasoline lines of your customers' cars. It will gradually corrode the brass and copper parts it contacts. It drives away business and increases your marketing costs.

Color Stability is therefore a prime requisite. No gasoline can be GOOD gasoline without Color Stability.

Make this test yourself

Take several 4-ounce bottles of gasoline. Include a bottle of PARCO. Expose them to the sunlight indefinitely and you will find that the poorly refined gasoline will show—

1. A *Milky Appearance.*
2. A *Yellow Color.*
3. *Yellow, Brown or Black Deposit which is Not Soluble in Gasoline.*
4. A *Disagreeable Odor.*

PARCO on the contrary is *guaranteed* to be stable in color and will retain its Crystal White Color and Sweet Odor indefinitely without the slightest trace of any deposit whatsoever.

PARCO'S Crystal White Color is *guaranteed* to be stable indefinitely without the slightest change or deposit whatsoever. Its Sweet Odor is *guaranteed* to be constant. It is a highly cracked product, rich in anti-knock value, rigidly controlled through every refining stage. It comes to you with the correct, predetermined seasonal volatility.

Get a sample of PARCO from any of our Division Sales Offices. Test it—compare it with other gasolines. You'll find PARCO'S *Guaranteed Crystal White Color* entirely stable, its sweet odor constant, its anti-knock value high—a *highly cracked, pure, premium motor fuel*—WITHOUT PREMIUM PRICE.

Order a car of PARCO. Our nearest office will gladly quote you.

PRODUCERS and REFINERS CORPORATION

Independence Denver Chicago Tulsa
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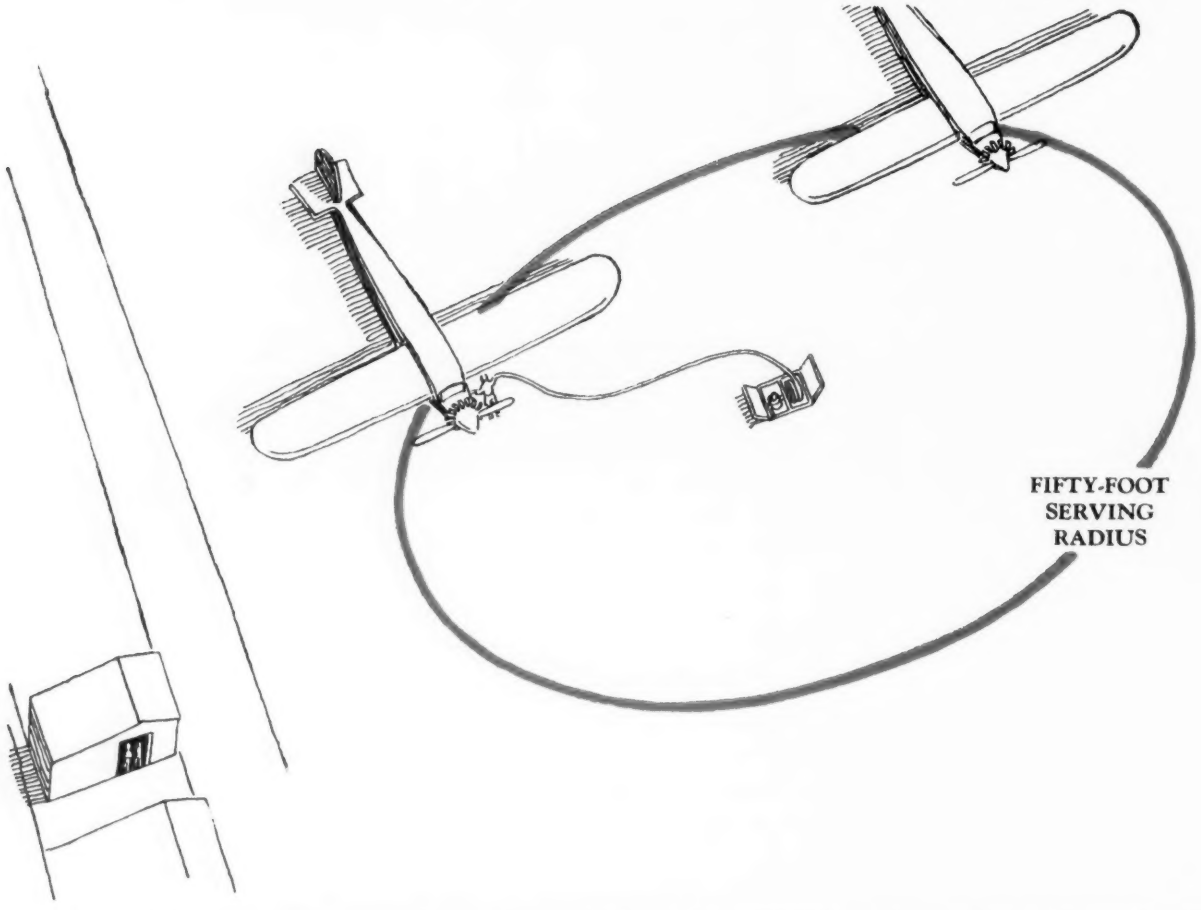
Our modern Refinery at Parco was built to advantageously supply Northwest jobbers. . . Our Refining Facilities at West Tulsa and Blackwell mean advantageous freight rates for Southwest and Central States jobbers.

PARCO GASOLINE

Seasonably Volatile . . . Anti-knock

PARCO PETROLEUM PRODUCTS

Fueling Airplanes



It's just as necessary to have special equipment for fueling airplanes as it is to have specialized equipment for fueling automobiles.

Bowser's aviation fueling equipment was designed especially to meet the needs of aviation. It is in daily use on many fields and has received the enthusiastic approval of experienced pilots and field managers everywhere.

The delivery point is a steel pit which contains 50 feet of hose on a reel, "Xacto" Meter for accurate measurement, control switch and strainer. It is sunk in the ground, flush with the ground level and offers no ground hazard—planes can taxi directly over it when the covers are closed—it is waterproof.

The pumping apparatus is located in the hangar or shop where it is easily accessible, but is controlled from the pit.

The delivery pit has a serving radius of 50 feet in any direction.

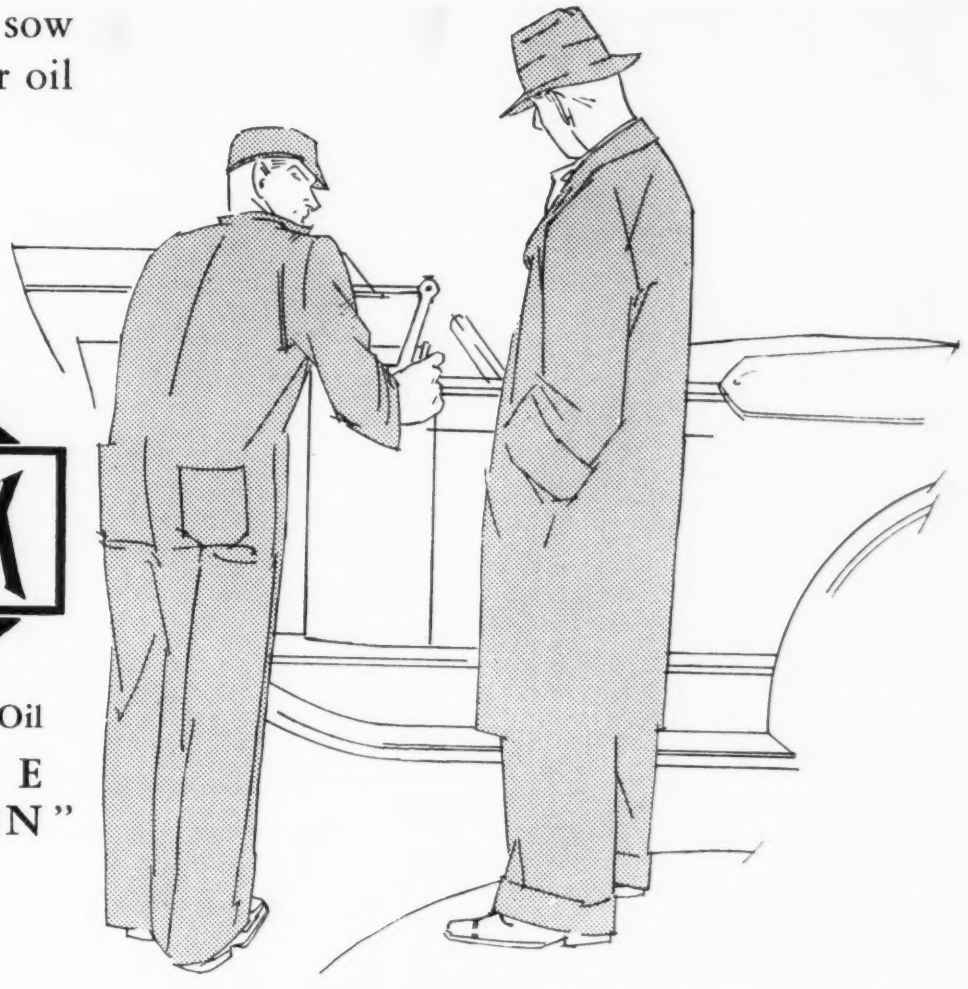
By means of this equipment gasoline is filtered and strained to eliminate all water and impurities, is accurately measured and delivered directly into the fueling tanks on the plane at a speed of 20 gallons a minute. Only 5 minutes are required for a 100 gallon delivery.

More information on Bowser's specialized aviation fueling equipment will be gladly furnished on request.

BOWSER
ESTABLISHED 1885

S. F. BOWSER & CO., Inc. 1302 CREIGHTON AVENUE **Fort Wayne, Ind.**

You *reap* what you sow
. . . in selling motor oil



MOTOR OIL
GOES FARTHER
DEEP-ROCK
LASTS LONGER
GREASE

100% Pure Paraffine Oil

"POSITIVE LUBRICATION"

"What is the real secret of your big success in selling oil?"

"It's no secret. It's DEEP-ROCK OIL—*repeat* orders from satisfied customers."

Deep-Rock Prize Motor Oils are a source of new and increasing profits to distributors and oil stations because they provide *Positive Lubrication* for car, truck and tractor, airplane and motor boat. They meet every lubrication need whether for transportation or industrial uses.

These 100 per cent pure paraffine motor oils manufactured from selected Mid-Continent crudes are refined to meet exacting demands of all modern types of engines.

Deep-Rock Prize Motor Oil is one of an outstanding group of Deep-Rock Petroleum Products. Deep-Rock Lubricating Oil Exclusive Franchise territory is open. Take the first step towards this unusual, permanent, and profitable connection by writing

BYLLESBY
SHAFFER OIL AND REFINING COMPANY
PIONEERS IN PUBLIC SERVICE

EASY STARTING KANT-NOCK REDUCES CARBON GASOLINE

GOES FARTHER DEEP-ROCK LASTS LONGER GASOLINE

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General Sales Offices: 300 West Adams Street, Chicago

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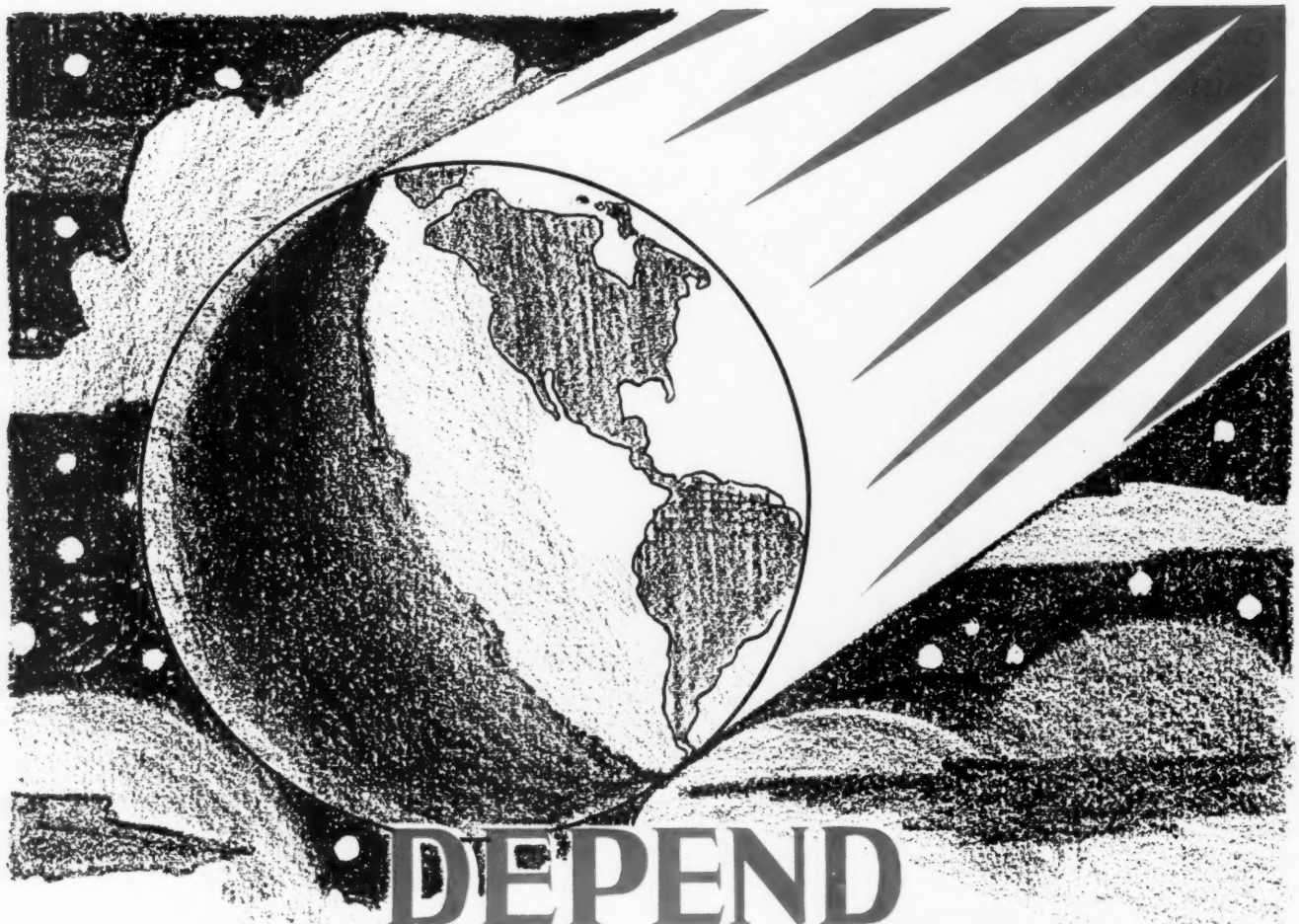


DEPEND ON THE GLOBE

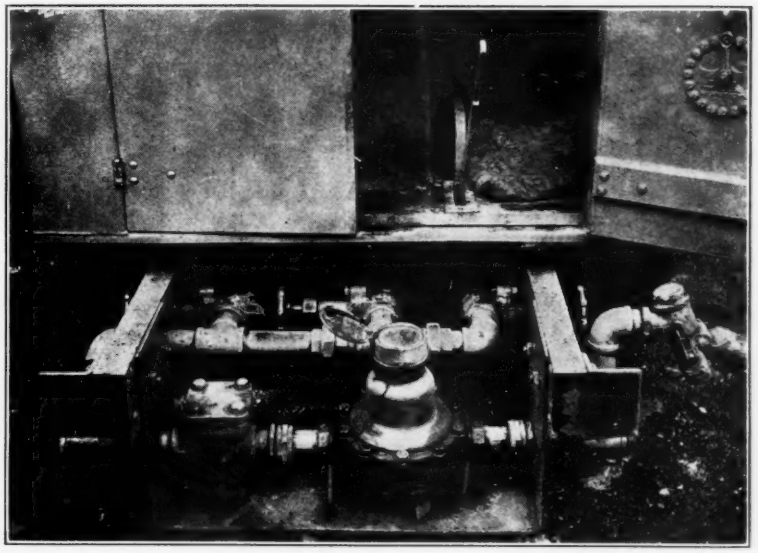
TO MAKE YOU A PLACE IN THE SUN

GLOBE GASOLINE

GLOBE OIL & REFINING COMPANY

Refinery Blackwell, Okla.-Sales Office 1509 Philtower-Tulsa, Okla.

Your Tank Wagon



Is It Equipped with a Meter for Accurate Measurement?

Keystone Oil and Gasoline Meters are giving satisfactory service on numerous truck tanks throughout the country. Both buyer and distributor are assured of accurate measurements.

The totalizing register gives an absolute check on amount sold over any given period of time from each individual truck.

These meters are also adaptable for use on storage tanks, distribution lines, railway tank cars and in fact any service requiring accurate measurement and record.

Keystone Oil and Gasoline Meters

BRANCH OFFICES
New York, New York.
Chicago, Illinois.
Dallas, Texas.
Los Angeles, Cal.
Tulsa, Oklahoma.
Seattle, Washington.
Columbia, S. Carolina.
Salt Lake City, Utah.
Kansas City, Missouri.

PITTSBURGH EQUITABLE METER COMPANY

PITTSBURGH, PA.

Denatured Alcohol Cold Weather

Millions read Ads that

Cold Weather Coming, says newspaper. Better get Denatured Alcohol in the radiator, and avoid a lot of trouble.

Millions of people will read these Cold Weather Warning advertisements . . . and then buy their Denatured Alcohol.

COLD WEATHER COMING! . . . warns the Weather Bureau.

Out go telegrams to newspapers in the "Cold Weather Zone."

In a few short hours newsboys are selling the papers on the street. Millions of car owners are reading Denatured Alcohol ads featuring cold weather forecasts.

Thus are millions being warned —*in time*—to protect their cars this winter with Denatured Alcohol.

It's a real, helpful service for motorists. And a profitable service for dealers, too.

Millions of people are learning that Denatured Alcohol is the best Anti-Freeze. Learning that all car manufacturers approve it . . . that the majority specify it exclusively. And they're being told to go to the garages, service stations and auto dealers where they see the red and green Denatured Alcohol sign.

"Free Testing Service" . . . that's what this sign says. And it will bring a lot of business to the dealers who display it.

All winter long, motorists should have their radiator solutions tested. This means safety for them . . . and greatly increased profits for you.

Extra Profits—How to Get Them

No progressive dealer needs to be told that he should push and sell Denatured Alcohol during the winter. Winter profits are too hard to make . . . and Denatured Alcohol too easy to sell . . . to require the slightest bit of explanation. But we want to make sure that you get the utmost benefit from our advertising campaign.

Put up the red and green sign. Make sure that you have the Alco-Tester. Offer free testing service to the motorists in your neighborhood. Remember . . . Free Testing Service brings them back to you instead of somebody else.

Mail Coupon Now for Alco-Tester

We need your cooperation to insure this campaign's success. The only way to get business is to go out aggressively after it.

As the first step will you be sure to offer this free testing service . . . order your Alco-Tester today.

Just clip a $1 to the coupon below and we'll send you an Alco-Tester. This is a special price . . . set remarkably low . . . so that every Denatured Alcohol dealer will buy one. The Denatured Alcohol Protection Chart will be sent with every Alco-Tester as well as the outdoor fibre sign shown in the pictures on the right.

$1 to increase your Winter Profits many times . . . surely that's not too much to ask. Clip the coupon now while the subject is on your mind. Mail it today!

Mail Coupon With One Dollar for ALCO-TESTER

B-1

The Industrial Alcohol Institute, Inc.
30 East 42nd St., New York, N. Y.

Gentlemen: Here's my dollar for the Alco-Tester. I am to receive also the Denatured Alcohol Chart and sign.

Name_____

Address_____

City_____ **State**_____

Free Testing Service Makes Money for Dealers

Campaign Based On Warnings

build DEALER PROFITS

WHAT A DRAMATIC STORY *these pictures tell. Cold weather swoops down from the North . . . and motorists hurry to buy Denatured Alcohol. Here's winter profits for you!*

"CHEAP INSURANCE *this Denatured Alcohol," says motorist. "A frozen radiator is no joke."*
No wonder dealers everywhere are getting ready for a big demand.

Bat's grease

"See the Wheels Go Round In Grease"

An actual demonstration of where GREASE is used, how it works and how "Bat's" Grease Lasts will be shown at our exhibit at the Big 4-State Convention—

Kansas City, October 3, 4 & 5

"Bat"

The BATTENFELD GREASE AND OIL COMPANY
KANSAS CITY, MISSOURI

"Business is Ingreasing"

Specify Goodrich on your next Truck

A HE TIRE—
and rarin' to show it!

Where solids carry the load there is no question what GOODRICH DE LUXE CUSHION SAFETY will do.

No question about traction . . . just look at the deep-cut tread.

No question about strength and wear . . . for Goodrich developed a new and unusually tough rubber compound for this stalwart.

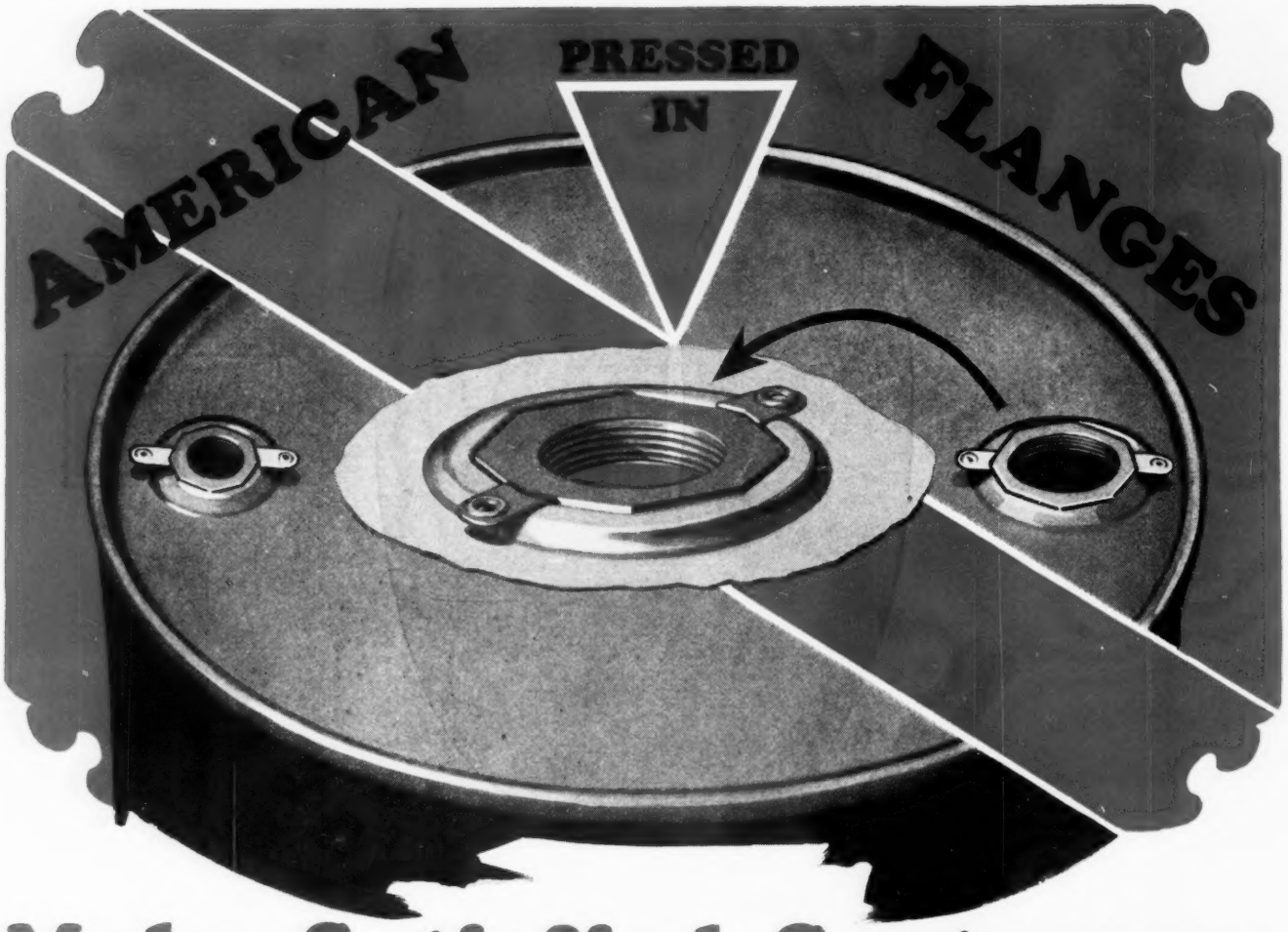
A "HE" Tire in "makeup"—in mileage-making—in sturdiness—and in economy.

No wonder oil companies turn to DE LUXE CUSHION SAFETY when they want "most tire miles."

THE B. F. GOODRICH RUBBER COMPANY
Est. 1870 Akron, Ohio. Pacific-Goodrich Rubber Co., Los Angeles, Calif.
In Canada: Canadian-Goodrich Co., Kitchener, Ontario

Goodrich
FOR TRUCK TIRES

Solids and Heavy Duty Silvertowns, High Pressure or Balloon



Make Satisfied Customers

by Stopping Leaks and Losses

Tight drums are absolutely assured with American Pressed-in Flanges. No need to suffer leaks and losses from faulty bung bushings. Our flanges *cannot leak.*

THE TAMPER-PROOF
CAP SEAL

Easy to put on and stays put. Absolute protection against substitution. Used by leading firms everywhere.

And not only that: American Pressed-in Flanges avoid the danger of contaminating the product. There's no welding—hence no possibility of scale to loosen and fall into the contents.

Then again, heating flanges to the welding point causes distortion resulting in uneven seats for the plugs and leaky bungs.

American Pressed-in Flanges are precise fitting—insuring precision plug seats, and a clean surface inside and out.

If your drums are not so equipped, specify American Pressed-in Flanges and banish anxiety, loss and complaints. Remember, they cost no more.

The concerns listed at right will supply you with drums equipped with American Pressed-in Flanges. More than one-half the drums made today are equipped with them.

American Lugs for Wire Seals

These Companies will also furnish you with our Special Lugs (if you use wire seals or shipping tags). These Lugs cannot work loose or fall off. Write for full information on all our products.

Atlas Steel Barrel Corporation
Boyle Manufacturing Company
Butler Manufacturing Company
Erie Steel Barrel Company
Manion Steel Barrel Company
Metal Containers, Ltd., London, England
Meurer Steel Barrel Company, Inc.
National Enameling & Stamping Co., Inc.
National Steel Barrel Co.
Niedringhaus, Inc.
Rheem Manufacturing Company
St. Louis Steel Package Co.
The American Container Co.
The Metallic Roofing Co. of Canada, Ltd.
The Ohio Corrugating Co.
The Petroleum Iron Works Co.
The Republic Steel Package Co.
The Republic Steel Package Company of California
The Stevens Metal Products Co.
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AMERICAN FLANGE & MANUFACTURING CO.

4646 Arthington Street — Chicago, Illinois

NATIONAL PETROLEUM NEWS

Science Blindfolded in Search for Oil If Use of Radio is Forbidden

By V. B. Guthrie
N. P. N. MANAGING EDITOR

WASHINGTON, Sept. 22

THE oil industry is threatened with partial or entire loss of use of the radio in carrying on its operations. This through the attitude of the Federal Radio Commission.

The most important phase of this is that if the radio commission has its way scientific methods that have been developed in the past two or three years to reduce the element of hazard in exploring for oil structure will be in large part thrown into the discard and the seeker for oil will again have to grope his way blindfolded.

The commission has refused all applications of oil companies for new stations on the grounds that their issuance was "not in the public interest, convenience or necessity."

The oil industry is possibly the largest user of the radio except the transmitting business itself. It uses waves of low power to transmit time signals in operating geophysical instruments in the search for oil bearing structures. Great success has been achieved the past year or two in locating salt domes in the Gulf coast territory by this method, which employs the variations in resistance to transmission of sound waves of different kinds of underground structures to aid in identifying those structures.

Oil companies also use the radio method of point-to-point communication in new oil fields which are being developed. Radio communication can be more quickly set up and much more economically operated than telegraph lines in the sparsely settled territories in which the new fields of the southwest are located.

In west Texas now there are districts where it takes three days to transmit a message from the outside by telegraph while it can be done instantaneously by radio.

The oil industry is fighting this attempt of the radio commission to rule it off the air. The Washington office of Fayette B. Dow and his assistant, Horace Lohnes, represents in this matter the National Petroleum Association, the Mid-Continent Oil & Gas Association, the Western Petroleum Refiners Association and about 20 interested oil companies.

In refusing the applications of the oil companies for new stations, the Federal Radio Commission has given them future hearings. Hearing on applications for geophysical stations is to be held on Nov. 13 and a later one on applications for point-to-point stations for communication purposes.

The oil industry will try to show that it is of just as great benefit to the public to allow it to have some portion of space in the air to carry on its operations in a more efficient and therefore more economical manner, as for the entire time in the air to be given over to transmission of matter of so-called direct entertainment appeal to the public such as time signals, news broadcasting, cooking recipes and so on.

In a nutshell the question may be whether the oil industry, or industry generally, shall have a particular half hour to use radio transmission for a business purpose, or whether that half hour shall be given over to a jazz orchestra advertising tooth paste for the entertainment of the public.

There is not room enough in the air to accommodate all who want to use it. Therefore, the commission must decide which of the applicants, by use of radio, will benefit the largest number of people.

The Federal Radio Commission, which was created by congress in 1927, to find some means of regulating radio broadcasting, has taken the stand that transmitting agencies which serve the public directly have first call on the air, after special needs of the army and navy are taken care of. It recently ruled 150 general broadcasting stations off the air in an effort to lessen the present confusion.

"The oil industry is vitally interested in the use of radio, both as an aid in geophysical exploration and in point-to-point communication service," is Mr. Dow's comment on the situation. "In the former the use of radio is absolutely essential, while in the latter great hardship would be caused if this modern method of communication should be barred to the oil industry in communicating with distant and inaccessible fields."

* * *

Staff Special

TULSA, Sept. 24.—To aid in presenting its case to the commission the industry has retained Prof. C. M. Janski, Jr., associate professor of radio engineering at the University of Minnesota. Mr. Janski has been in the Mid-Continent field during the past week conferring with attorneys for various companies and with technologists interested in geophysical work.

In the use of both the seismograph and the pendulum, precise time readings are essential if results are to be obtained. With the seismograph time must be known within one three-hundredth of a second. It is impossible

to obtain accuracy within such close limits with any manually operated stop watch.

The industry does not require any particular band of wave lengths for this work nor does it use high powered stations which would carry over extended distances. The average set used probably uses less than 5 watts and none is known which uses more than 50 watts.

When the Panhandle fields in Texas were developed the Skelly Oil Co. and Phillips Petroleum Co. erected stations before commercial wire service was available and were able to avoid great expense and delays.

In most instances the oil company use of radio is not in competition with commercial carriers but to points where the wire companies could not justify the expense of special lines or could not complete lines without great delays even if the construction work were feasible.

The Illinois Pipe Line Co. is the pioneer user of radio for point-to-point service and the Skelly Oil Co. at Tulsa has had its system in use since 1921.

* * *

By Special Correspondent

WASHINGTON, Sept. 24.—The precise point which the oil station men must meet is the query whether the oil station is required by public convenience, interest, or necessity.

It is easily deducible from the utterances of members of the commission's staff that the inclination is to regard as not showing public convenience, interest or necessity, applications by companies or even associations for permission to use the air for expediting the movement or discovery of oil.

All the applications, having been made by or in the name of a single company, generate a scarcely concealed hostility. The commission is distinctly against the grant of air channels for the use of a single company in the conduct of its own business. The tendency is to force kindred or like interests to be content with one or two bands and have the facilities in such a band open to the use of any one.

Newspapers have been forced to combine and to transmit news for any one desiring the use of the air for that purpose.

Applications for permission to operate portable sets in geophysical work far outnumber those for permission to construct and operate commercial or point-to-point plants. Seventy-nine geophysical applications have been placed in the category of notice that the prima facie showing was not sufficient to warrant grant of licenses.

One definite rejection has been made. The commission denied the application of the Roxana Petroleum Corporation to construct four stations for point-to-point communication on the ground that its president, vice president and chairman of the board were not citizens and that therefore the corporation was not entitled to licenses.

While the question of public convenience, necessity, or interest is one of law only two of the commissioners are lawyers. They are J. E. Robinson and E. O. Sykes. Commissioner H. A. Lafount is a civil engineer, Commissioner Sam Pickard came from the radio service of the Department of Agriculture and O. H. Caldwell, a radio man, is better known as a big man in the McGraw-Hill publications. None of them has any knowledge of the oil industry other than that which any well informed man possesses.

Herewith are given the names of applicants for licenses to use radio bands in geophysical work, the number of such applications being indicated by the numeral following the name:

Geophysical Research Corp., 25; Humble Oil & Refining Co., 18; The Texas Co., 12; Phillips Petroleum Co., 3; McCollum Geological Explorations, Inc., 1; Geophysical Research Corp., 16; and Phillips Petroleum Co., 1.

Point-to-point communication applications: Skelly Oil Co., 3; Phillips Petroleum, 3; Illinois Pipe Line, 6; Marland Pipe Line, 2; Humble Pipe Line, 2; and Texas Pipe Line, 3.

Any decision as to license to construct or operate is appealable to the Court of Appeals of the District of Columbia or the federal court for the district in which the station is located or where it is desired to locate a station.

In the event any of the oil applicants for point-to-point communication are successful their rates, facilities and practices are subject to the scrutiny of the Interstate Commerce Commission.

Heavy Program Arranged for Tax Conference

CHICAGO, Sept. 22.—When the North American Gasoline Tax conference holds its third annual convention at the Peabody hotel, Memphis, Oct. 1, 2 and 3, the oil industry will be represented on the program by three large oil company attorneys. They are Frank L. Packard, tax attorney, Standard Oil Co. of Indiana; Ike W. Crabtree, general counsel, Producers & Refiners Corp. of Tennessee, and H. D. Minor, general counsel, Standard Oil Co. of Louisiana.

Mr. Packard is scheduled to read a review of the oil industry. Mr. Crabtree will discuss the apportionment of gasoline tax revenue. Mr. Minor will tell of some recent tax decisions.

The opening day of the conference will be given over largely to formal addresses. Governor H. H. Horton of Tennessee will greet the delegates and they will be welcomed by Mayor W. S. Overton of Memphis. William A. McAtee, president of the conference, will respond to the greeting and the welcome.

The business portion of the program begins with an address by James Duce, state inspector of oils in Colorado, entitled, "Inspection—Its Progress." He will be followed by Arch L. Foster, U. S. Bureau of Mines, who will discuss "Gasoline Specifications and History."

A committee of the conference has framed a model gasoline tax law. The legislative committee is headed by Edward Martin auditor general of Pennsylvania. Most of the afternoon of the first day will be taken up with a clause-by-clause discussion of the proposed measure.

It is the plan this time to divide the conference as usual into four major committees to expedite work. They are committees on administration, exemptions, rate and uses, and inspection. All matters that normally come before the conference fall into one or the other of those classifications and can be handled first by a committee.

Two of the oil attorneys are on the first day's program. The second day's program contains two papers besides Mr. Packard's. "Gasoline Tax in Canada" will be discussed by W. H. Brown of Toronto, Ont., and Archie Bobbitt, gasoline tax collector of Indiana, will review the famous case of Panhandle Oil Co. against the state of Mississippi. An effort is being made to have J. N. McCarl, comptroller general of the United States, attend.

A "question box" will be placed in a conspicuous place at the conference rooms and questions placed therein will be discussed the second day of the meeting.

The weighted average price of Oklahoma gasoline for Monday, Sept. 24, will be found in the table on page 108.

Eastern Refiners to Join in Research Program on Refining Problems

By Paul Truesdell
N. P. N. STAFF WRITER

ATLANTIC CITY, Sept. 21

THE eastern refiners composing the National Petroleum Association, at their twenty-sixth semi-annual meeting which ended here Sept. 21, resolved to embark upon a program of cooperative research on refining problems. Just what the program is to include and just how it is to be handled are matters yet to be decided.

But they are going to be decided right away and the thing set in motion. G. C. Davison, president of the Tri-State Refining Co. at Kenova, W. Va. a scientist and a former navy officer, practically promised at the meeting to head up the project, lay out a tentative program and recommend to the membership how to go about it.

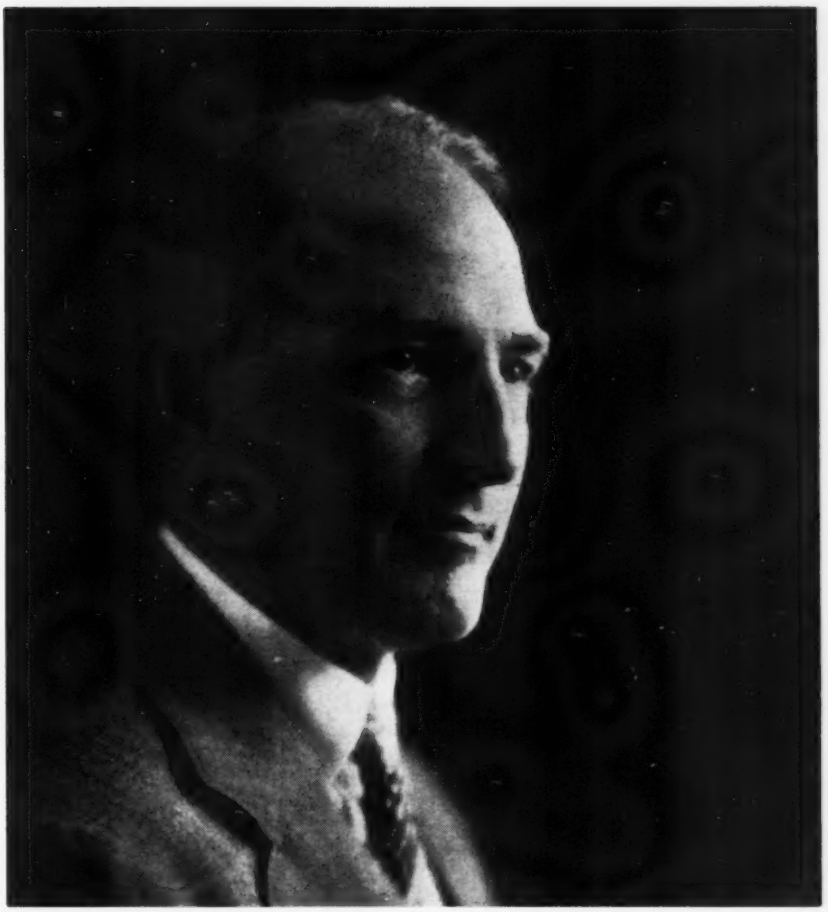
The association was prompted to start the research program by the multitude of problems both scientific and practical that daily confront them in their operations and they were encouraged to believe they can put it across by the great success that has attended the cooperative boiler house improvement campaign that was launched by 15 members of the association three years ago.

Herbert A. Ross, in charge of this combustion improvement program, reported at the meeting that the 15 members participating during the three-year campaign have saved some $433,000 in fuel, an average of around $35,000 each, at a cost for the services of the engineer of about $600 a year for each plant. Very few of the refineries in the campaign put in any new equipment.

Mr. Ross was employed for another year by vote of the meeting and there is a waiting list of refiners anxious to avail themselves of the service if any vacancy occurs in the group. Fifteen plants are all that Mr. Ross is able to handle.

Decision to extend their cooperative work into the field of research was the outstanding feature of the meeting.

The election of officers brought a return to office of President of E. M. Lyons, Tiona Refining Co. and of P. S. Tarbox, Independent Refining Co., as first vice president. The board of trustees was enlarged from 12 to 15 members and three new trustees were elected. These are N. H. Weber, vice president Pure Oil Co., W. T. Holliday, president Standard Oil Co. of Ohio and Earle M. Craig, Freedom Oil Works.



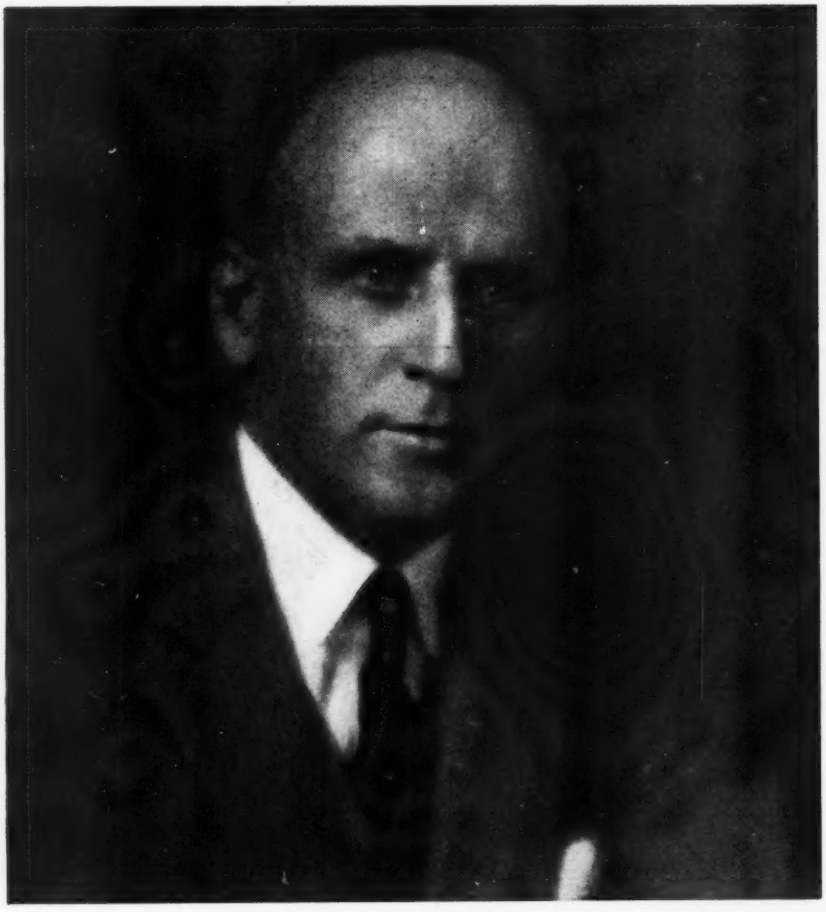
E. M. Lyons, president National Petroleum Association. Tiona Refining Co., Clarendon, Pa.

Mr. Weber was also elected second vice president succeeding H. A. Logan United Refining Co., who resigned the office although remaining a trustee. E. W. Smiley, Superior Oil Works, who for many years has acted as assistant recording secretary at meetings of the association was formally elected to that office. Herbert C. Eaton is recording secretary.

The convention opened with a meeting of the trustees on the morning of Sept. 19 but the general sessions opened in the afternoon with adoption of amendments to the constitution of the association, the chief of them being that which increased the membership of the board of trustees.

Mr. Ross then read his paper on "Efficient Combustion" which is published elsewhere in this issue of NATIONAL PETROLEUM NEWS. He was followed by H. C. Mougey, chief chemist, General Motors Research Corp., who talked on "Developments and Possible Future Developments of the Internal Combustion Motor." This address was similar to one that Mr. Mougey delivered some weeks previously in Toledo before the Ohio state jobbers' association, which is reproduced in this issue.

Mr. Mougey aroused considerable interest and no little argument when he stated that the pour test or "cold test" of an oil has nothing to do with ease of starting the engine on a cold winter morning. In answer to all questions Mr. Mougey replied that he meant what he said, that what affected the ease or difficulty of starting the engine in cold weather was the viscosity of the oil at the cranking temperature of the engine. He said, however, that the cold test of an oil did have considerable to do



Fayette B. Dow, general counsel National Petroleum Association, Washington

A PLEASANT surprise for visitors at the National Petroleum Association meeting was their entertainment at a theater party after the banquet on Thursday evening as the guest of one of the trustees.

On the final session of the meeting Fayette B. Dow let slip the secret that the trustee who was host at the party was O. P. Keeney.

with lubrication of the engine when starting cold because the pour test gave an indication as to whether or not the oil would flow readily to the oil pump inlet.

Mr. Mougey was followed by D. G. Brandt, research engineer, Henry L. Doherty & Co. with a paper on pipe stills. Mr. Brandt traced the development of pipe stills in his own company and in general. He stated that his company is now using pipe stills designed by its own engineers which operate at furnace temperatures of about 1400 degrees F., flue gas temperatures of about 375 degrees F. and take off overhead about 75 per cent of the crude at a fuel consumption of 0.8 per cent based on the crude charged. These stills employ recirculation of flue gases and the temperature of the combustion chamber is held within close limits by regulating the volume of gases recirculated, he said. Mr. Brandt's paper will be found in another part of this issue.

H. S. Bell, petroleum engineer who inaugurated the cooperative combustion improvement program, led a free-for-all round table discussion which included papers on "Cold Settling" by L. C. Jamieson, Viking Oil Corp.; "Vacuum Distillation" by D. G. Brandt; "Modern Distillation," by D. W. Hovey, Waverly Oil Works; "Maintaining Production," by MacLean Houston, United Refining Co. and "Filter House Practice," by J. B. Northrop, Ohio Valley Refining Co.

The two last named papers were published in the Sept. 19 issue of NATIONAL PETROLEUM NEWS. Mr. Jamieson's and Mr. Houston's papers are in this issue. Mr. Brandt said that so far as vacuum distillation of wax bearing crudes was concerned his company had never been able to do it commercially as yet.

On Thursday morning, Sept. 20, came the report on the results of the combustion improvement program for the year, its possibilities during the coming year and the possibilities of cooperative research. The discussion of the latter subject was led by G. C. Davison. O. P. Keeney, Keeney Oil Co. and Howard H. Greene, Kendall Refining Co. and others participated freely.

On Thursday afternoon, Houston Dunn, general manager of the Na-

N. H. Weber, Pure Oil Co., elected trustee and second vice president National Petroleum Association

tional Petroleum Mutual Fire Insurance Co. spoke on "Burning History," discussing some of the causes of fires in the oil industry. He was followed by a talk by James H. Herbert, president of the fire and safety marshals' association on the work of that organization.

John D. Gill of the Atlantic Refining Co. presented a paper on "Marketing Practices in the Oil Industry." A paper on "Constructive Marketing" by Norman M. Day, Pennzoil Co. of California, was read by Charles L. Suhr, president the Pennzoil Co., in the absence of the author. The paper commented in humorous vein on some of the fallacies, foibles and follies of the California marketing situation.

E. Earl Newson, assistant director of the Oil Heating Institute, in a paper, "What Oil Heating Means to the American Home and to the Oil Industry," stated that it is the hope of the institute that 500,000 oil burners a year will be installed during the next few years, making an ultimate market for some 30,000,000 barrels of furnace oil annually.

In a paper on "Facts Significant in the Profitable Management of Petroleum Refining and Marketing," Henry W. Ralph discussed the necessity of proper procedure and proper records to keep all branches of an organization informed as to what they were doing if a profit is to be made.

The banquet was held on Thursday evening at the Traymore Hotel.

On Friday morning Willis Crane, traffic attorney of the association read his paper which is published in another part of this issue. Dr. Joseph E. Pogue read his paper on "The Price of Prosperity in the Petroleum Industry." Edgar L. Smith, president of the Investment Managers Co., spoke on "Protecting the Future." His theme was that a company should watch the investment of its surplus so that the money put aside as a reserve would have the same value when needed as when it was put aside.

THE affection in which the National Petroleum Association is held by its members was shown by the greetings sent in by asbentees. George P. Brockway, for years president and manager of the Seneca Oil Works, Warren, wired his greetings from Topeka, Kans., where he is en route to California following the sale of his plant to the Swan & Finch interests.

Judge C. D. Chamberlin, for years general counsel and secretary of the association, sent a greeting from his home in Cleveland and Otto Koch, Kendall Refining Co., wired his message from California.

P. S. Tarbox, first vice president, National Petroleum Association, Independent Refining Co., Oil City, Pa.

I.O.M.A. Plan Convention Of Unusual Sort

CHICAGO, Sept. 22.—All the energies of the office organization of Independent Oil Men of America are being concentrated upon the fall convention which takes place in Chicago, Nov. 19, 20 and 21 at the Stevens hotel. But the gathering is not to be called a convention. It will be spoken of as the "First Annual Marketing Congress." Authorities say it is going to be different and must have a different name.

Lou Harrington, resident manager of the I.O.M.A., is responsible for a novel feature to add zest to the exhibitors' part in the event. The association is offering a gold medal to the manufacturer of oil handling equipment who has contributed the greatest service to the petroleum industry during 1928. The medal is solid gold, three inches in diameter and as thick as a half dollar.

Just how the services of the equipment manufacturers will be measured in terms of their value to the oil industry, is not yet determined. Just who the judges will be and how they will be selected, to measure this intangible element of service, is also resting "on the lap of the proverbial gods." Any way, the medal is coming up, it is going to be worth winning, and it will be awarded at the Congress.

At a regular meeting of I.O.M.A. trustees on Sept. 18 at the Chicago headquarters, tentative plans were approved for the event. C. L. Maguire of Chicago, chairman of the board of directors, President E. H. Hilpp of Louisville, and Secretary Paul U. Deer of Crawfordsville, Ind., and three directors were present. L. D. Pierce of Providence, R. I., A. L. Lommel of Waterloo, Ia., and C. S. Rosenthal of Chicago were the directors.

Methods of boosting attendance were discussed. Several of the association officials agreed to organize parties from their home states to travel in special cars to the meeting. Mr. Hilpp proposes to bring at least one airplane load from Kentucky. B. L. Majewski, vice president of Shaffer Oil & Refining Co., Chicago, was appointed head of the program committee. The program, it is said, will embody a large amount of pleasurable entertainment.

FAYETTE, O., Sept. 22.—Hippert & Stover have dissolved their bulk station partnership here and the station will be operated by William Hippert as sole owner. Mr. Stover has entered the garage business here.

Don't Be Fooled by Misleading Quota

By Warren C. Platt, Editor

THERE appears to be a determined effort in some quarters, particularly among a certain type of speculative tank car brokers, to break the tank car prices on gasoline.

And the industry as a whole may well beware; the refiner because the tank car market which he has made by an intelligent operating program of not refining more than the market can consume, may be destroyed; and the jobber because the low-price gasoline he may be offered may not be the kind of gasoline he thinks it is.

And the industry at large can look with suspicion and disapproval because a small group of speculators who contribute nothing to the industry, are trying to wreck the first intelligently successful season the refiners have enjoyed and are working to put the industry back to the wide margin period of the last few years which brought in against the legitimate jobber more competition than he should have.

The seeming concerted effort to break the market is being gone about in the following fashion:

Quoting broadcast at low prices a gasoline as "U. S. Motor Specifications" when it is so sour and off color as not to meet ordinary trade requirements.

Quoting broadcast at low prices a gasoline as "Navy Specification" which the average oil man probably thinks of as a short way to say "U. S. Motor specification." There is no "Navy" specification today. That term means whatever the seller wants it to. The "Navy" reference is undoubtedly being used to fool the buyer.

Quoting low prices on U. S. Motor without informing prospective buyers that it has been rejected for being off specifications.

Quoting low prices on a few cars that are occasionally picked up from an unfair type of jobber who has been ordering out all his requirements on his wide marginal contract and selling what he does not need through brokers at a big cut under the going market.

Broadcasting low price quotations based on one district on the few cars that occasionally are offered by small refiners located in another district, without informing the trade just where they are coming from. This is a favorite method of attacking the market, and buyers are fooled thereby.

Spreading false stories generally about alleged low prices, about the market reporting authorities being "fooled" by the refiners giving them "false" information, that every one is in a "conspiracy," etc., etc.

There is every reason to believe that the tank car market is not going to pieces this winter the way it has in past years. The refiners seemed to have learned their lesson and it appears that they probably will continue the same manufacturing policy of the past summer through the winter. If so, the tank car market will continue at a reasonable profitable level. Just because the refiners were foolish in years past, and by their short sightedness almost wrecked themselves and the legitimate oil jobbing industry in the bargain, is no reason that they must continue to be foolish to provide a living for a handful of speculative brokers.

The transition from a foolish policy of refinery operation and from a wild tank car market, to a sane policy and a stabilized market, like most other changes in this world, cannot come about without some pain. It is painful to reform bad habits. But that pain is about over.

There is no reason why, in the next few months, the unbusinesslike and money-losing discounts and side deals that have sucked the profit from the marketing business this year, should not be eliminated. The introduction of the Standard of Indiana's new form of "Q. D. A." Oct. 1, should mark, at least, the beginning of a vigorous and serious effort on the part of every one in the industry to get back on a sane business basis, of no price cutting and reasonable prices to all.

If the refiners will continue their sensible policy of operating—of not over manufacturing the tank car gasoline market—this can be achieved and every one much benefited. Should the refiners swerve from that policy and their tank car market go to pieces, the new "Q. D. A." and all reforms planned by intelligent jobbers looking to eliminating price cutting, would undoubtedly be quickly abandoned. A sound jobber's price structure can only be supported by a sound refinery price foundation. Keep the foundation firm and build a good house on top of it and profit will obtain throughout the whole oil industry.

Group Meetings Planned By Illinois Jobbers

SPRINGFIELD, Ill., Sept. 21.—Oil merchandising problems illustrated with motion pictures, and a lubricating engineer to discuss new appliances for cars that will affect oil sales, constitute the program which will be offered to the various group clubs of the Illinois Petroleum Marketers Association. This is according to the September issue of "The Oil Can," the association bulletin. These programs will be educational and will be based on sales and service statistics. An open discussion will follow.

The program will be presented by the Chicago and St. Louis divisions of the Vacuum Oil Co., New York. W. J. Gerwe, manager of the chain filling station department of the Vacuum, will have charge.

All oil jobbers are urged to attend and to bring not only their tank wagon drivers and service station attendants, but also customers. The meetings will be in the evenings, starting with a dinner at 6:30.

These meetings are scheduled on these dates at the following Illinois points:

Sept. 17, Bloomington; Sept. 18, Pekin; Sept. 19, Galesburg; Sept. 20, Quincy; Sept. 21, Springfield; Sept. 24, Litchfield; Sept. 25, E. St. Louis; Sept. 28, Vandalia; Oct. 1, Mattoon; Oct. 2, Decatur; Oct. 3, Danville; Oct. 4, Joliet. Meeting points for Sept. 26 and 27 have not yet been announced.

Meetings were held at Dixon and Rockford on Sept. 11 and 12 respectively.

Auto Output at High Rate

CLEVELAND, Sept. 24.—Automobile output in August totaled 458,429 passenger cars and trucks, the largest output since in 1926. Of the total, 400,689 were passenger cars and 57,740 trucks. According to Automotive Industries, September output will be less than the August output principally because of the fewer number of working days.

New Marketing Conditions Send Jobbers Seeking Contracts from Refiners

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, Sept. 24

NARROW margins which have been available to jobbers in the marketing territory of the Standard Oil Co. of Indiana this year have created renewed interest in marginal contracts with refiner sources of supply in this area.

Inquiries for contracts have been received by nearly all refiners in the field since margins began to narrow in June.

Indications are that more jobbers will ask contracts for next year than at any time since the war. Many jobbers who have bought entirely on the spot market since they have been in business are now asking for contracts which will guarantee them a margin under all conditions.

In the past year or so some jobbers have had market date of shipment contracts which were obtained as a result of negotiations looking towards the lowest possible price. In these instruments the buyer gave up a guaranteed margin in order to obtain a concession of a sixteenth to a quarter of a cent per gallon under the recognized market price as published in the trade papers.

The fallacy of these contracts has been brought home to jobbers who obtained them this year. When margins have been down to 3 cents per gallon or below on the basis of published tank wagon schedules without reference to discounts, the extra sixteenth or quarter of a cent below the going market has been of little benefit as compared with protection contracts guaranteeing a margin averaging 4 cents per gallon.

While jobbers are seeking contracts in greater numbers, refiners in the Mid-Continent are signing them with more discrimination and are making less desirable terms for 1929, The law of supply and demand is getting in its efficient work on contracts in the same way that it does in the sale of actual commodity itself. Several refiners are refusing to make any contracts.

For the most part refiners are not offering a flat guaranteed margin under the tank wagon market for 1929. The tendency appears to be to establish a sliding scale which will share short margins with the jobber on an equal basis.

One contract being offered this year provides a base margin of 3½ cents under the normal tank wagon schedule at the point of delivery from which to figure. If the margin becomes narrower than 3½ cents on a market plus freight basis the refiner will absorb half of the difference between the delivered price and the 3½-cent margin base.

As an example of this, if gasoline were selling at 8 cents per gallon in Oklahoma and the freight brought the delivered price to 11 cents per gallon the jobber would have a 3.5 margin on a published tank wagon price of 14.5 cents per gallon.

If the refinery price were to advance to 9 cents the delivered price on a spot market basis would be 12 cents and the actual margin 2.5 cents per gallon. As the new contracts work the refiner would reduce the delivered price 0.5 cent per gallon leaving the jobber an actual margin of 3 cents per gallon on a delivered price of 11.5 cents. If the tank wagon price then should be cut 1 cent to 13.5 cents with the market price remaining at 9 cents the jobber would have only a margin of 1.5 cents per gallon. On the contract basis this would be increased 1 cent to 2½ cents per gallon.

Some contracts being offered are based on the service station instead of the tank wagon price. These contracts call for a base margin of 5.5 cents per gallon with the same provision regarding splits in case the delivered market price rises above the base figure.

In these contracts a clause has been inserted providing that either party may cancel the arrangement in case there is a change in the relationship of tank wagon and service station prices throughout the marketing territory involved. Similar cancellation clauses are in some of the contracts based on the tank wagon with the 3.5 cent base margin.

On both types of contract the spot market is the basis for shipments where the jobber's margin under the tank wagon is 3.5 cents per gallon or 5.5 cents under the service station. Trade publication prices are to be used in arriving at the spot market at time of delivery.

Some refiners are requiring their customers under these contracts to display the trade mark of the refiner at their stations. In most cases refiners making motor oils require the jobber to purchase his requirements of that nature, some exceptions being made that the customer may carry one other line of oil. Requirements are made also that kerosene be bought from the same refiner.

A condition is made that local wars resulting in price reductions shall not affect the contract price; only advances or declines in the entire marketing territory of the recognized Standard company in the territory will affect the contract.

Jobbers are making strenuous objections to the terms of these contracts, particularly those who have had contracts in the past which guaranteed fixed margins of 4 to 4.5 cents per gallon under the tank wagon. But thus far no refiner in the field has offered a contract on more liberal terms than those described as far as has been learned.

Following are paragraphs referring to price and the method of calculating price clipped from the contract being offered for 1929 by one of the important refining companies in Oklahoma:

3. **PRICE:** The Buyer shall pay the Seller, subject to the conditions hereinafter stated, the spot market price f.o.b. Group 3, Oklahoma, for each shipment of gasoline purchased hereunder prevailing at the time of the shipment thereof: provided, however, that, whenever the official tank wagon price per gallon of..... .....on gasoline of the same or corresponding grades, exclusive of any tax thereon, exceeds said spot market price per gallon plus the cost per gallon of railway freight transportation thereof from ..... to the point of shipment, by less than .....per gallon on 56-58 and 58-60 gravity grades, and by less than..... .....per gallon on 60-62 gravity grades, the said spot market price per gallon shall be reduced as follows:

The sum by which the official tank wagon price per gallon of..... .....on gasoline of the same or corresponding grades, exclusive of any tax thereon, exceeds said spot market price per gallon plus the cost per gallon of railway freight transportation thereof, shall be ascertained. Said excess shall be subtracted from .....per gallon and/or.....per gallon, according to the grade or grades being invoiced, and one-half of the differ-

ence shall be subtracted from the said spot market price on the invoice of the Seller, and the sum remaining shall be the price per gallon to be paid and received for said shipment of gasoline.

4. SPOT MARKET PRICE: The spot market price per gallon, f.o.b. Group 3, Oklahoma, shall be ascertained by taking the Oklahoma price for like grades of gasoline as published in the "National Petroleum News" of Cleveland, Ohio, and the "Oil and Gas Journal" of Tulsa, Oklahoma, adding together the minimum and maximum prices of said gasoline carried in such publications and dividing the total sum of such prices by the number of prices so added together, and the quotient so obtained shall be the spot price of all shipments ordered to go forward the week beginning Monday next following the last publication of the aboved named trade papers.

5. TANK WAGON PRICE: It is hereby expressly agreed by the Buyer and Seller that the official tank wagon price per gallon of said .....at point of destination of shipments herein mentioned shall always have and maintain its normal relation to the general official tank wagon price of said.....throughout the marketing territory of the said ..... and that the price of goods covered by this contract shall in no case be affected by any special or cut tank wagon price applying only to point of destination, and not generally throughout the marketing territory of said.....

Another Side of the Q.D.A.

A Letter to the Editor

Editor, NATIONAL PETROLEUM NEWS:

YOUR editorial on cover of issue of Sept. 5, of the announcement of the Standard Oil and their Q. D. A. really makes me smile, or any other retail dealer who has followed the methods that the large companies have resorted to get business and put the other fellow out of the game.

Why put the blame on the retailer? In the first place he is only taking what has been offered to him, and has accepted it, and along with it plenty of advice on how to increase his business by increasing his gallonage by cutting prices, and putting the other fellow out of business.

You will probably think, "Do I know what I am talking about." Yes, I do.

I know of a certain oil company which offered me 5 cents a gallon off if I sold one or fifteen thousand gallons. I did not accept. The other fellow did. He is now selling their product at 2 cents a gallon less than the regular quoted station price, and they know it.

I think that the average retailer who has had plenty of experience in the retail business, will not cut prices, or start price wars unless he is coached by the company that is furnishing him with his goods.

And I also think that if any one could read between the lines there is plenty to be seen, which will develop later on. I cannot make myself believe that it is on the square.

Let us go back to the Q. D. A. and the farmer who had his gasoline delivered at his gate at tank wagon price and 1 cent refund at the end of the month. Now was that fine for him? I will tell the world it was. But how about the gasoline station on the corner? Who is paying the rent, the electric, water, and other sundry bills, and furnishing air equipment to inflate their tires when needed. And all on 2 cents a gallon, 1 cent a gallon less than what the farmer is getting.

Don't you think that some of these major companies need a little petting?

To sum up all of the facts, there is no one to blame, only them. Why take it out on the retailer? Don't you think that they could look at their coupon books? Where they could see where they gave 2 and 3 cents of their money and then gave away 2 cents of the retailer's money.

Are they facts? YES. Investigate, there is plenty of proof. I will say this much, if this new Q. D. A. is on the square and all of the commercial accounts both oil and gas is turned over to the retailer in his neighborhood or any place that a car happens to need it, it will be a fine thing for some gasoline stations. But we will wait and see.

C. A. OSBORN
White Star Filling Station,
Trenton, Mich.

Missourians For New Q. D. A.

KANSAS CITY, Sept. 22.—Jobbers in Missouri appear to be unanimous in their approval of the proposed changes in Quantity Discount Agreements which are to be made effective on Oct. 1 by the Standard Oil Co. of Indiana. George S. Allee, president of the Missouri Oil Men's Association has sent out a questionnaire to all jobbers in the state asking for their comments on the proposed change. He has had more than 250 replies to date, all of which indicate that the changes will be a relief from marketing conditions for the past two years.

Many Jobbers Favor Q.D.A. Plan

CHICAGO, Sept. 22.—Oil jobbers in Standard Oil Co. of Indiana territory are continuing to work on the new quantity discount agreement that will become effective Oct. 1. They are making an effort to "sell it" to their dealers and to their fellow oil men who have expressed dissatisfaction with the new price structure.

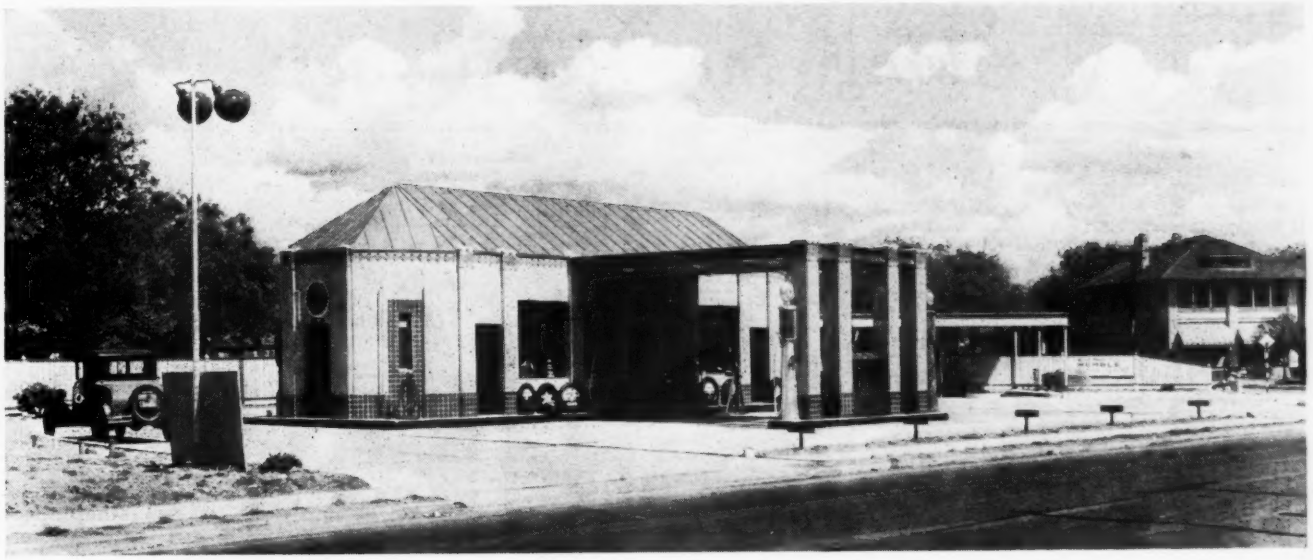
If the attitude of the rural and small town jobbers can be truly judged by the statements of secretaries of state oil jobbers' associations, the new price set-up is being accepted better in the outlying districts than in Chicago where dealer competition is keen. Representatives of a dealers' association in Chicago have called on executives of Standard Oil Co. of Indiana in an effort to forestall the reduction of their margin from 5 cents to a maximum of 3 cents.

George S. Allee, president of the Missouri Oil Men's Association, in his bulletin of Sept. 20, said, "There is not an oil jobber in Missouri who will not welcome the new marketing policy, judging from the response we have had to the questionnaires sent out a few days ago. We feel that the new policy will cure many ills of the industry if conscientiously interpreted and religiously respected."

A. J. Motter, secretary of the Kansas Oil Men's Association is holding regional meetings of his members in convenient localities over the state, explaining the workings of the new Q. D. A. and helping the oil jobbers to acquire an understanding of it so they in turn can pass the word along to their customers and dealers, and instruct their employes in methods of carrying it out. The meeting schedule was Pittsburg, Sept. 20; Topeka, Sept. 21; Salina, Sept. 24, and Dodge City, Sept. 25.

C. S. Rosenthal, an influential Independent jobber of Chicago, called a group of his fellow jobbers and carload buyers together at the Congress hotel Sept. 19 and explained the workings of the new Q. D. A. He made an effort to sell his competitors on the soundness of the new marketing plan and, he and several other Independents reported that the meeting was successful.

The meeting at the Congress hotel resulted in the formation of a Chicago jobbing group—an association which will function as one regional department of the Illinois Petroleum Marketers Association. Frank Fulton, a Chicago distributor of Standard Oil Co. products, was elected president of the local organization.



B-type service station of Humble Oil & Refining Co. at Sadia and S. Presa Sts., San Antonio

Humble Designs Fireproof Stations Costing Little to Maintain

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Sept. 22

TWO types of service stations—fireproof throughout—are being built by Humble Oil & Refining Co. under its recently inaugurated program to extend sales activities in parts of Texas.

The stations are of metal, brick and stucco construction, requiring little maintenance cost except for tending the surrounding grounds, trimming shrubbery and similar upkeep.

In general the designs of the two types of stations are similar. The B-type larger stations, such as the one shown in the accompanying picture, include tire, accessory, battery and ignition rooms in addition to the other facilities provided. Smaller A-type stations are similar in design, except that the aforementioned rooms are not included.

The stations are all finished in buff color stucco, on common brick, and are trimmed with blue, black and red tile of distinctive Humble shades. Roofs are of standing seam copper sheets and the windows are of Finestra fireproof steel with ¼-inch clear glass. Doors are painted blue and buff.

It is necessary to visit one of the stations to fully realize the distinctive character of the color scheme. No picture will show adequately the effect attained by the buildings.

The station shown in the accompanying picture was built at Sadia and S. Presa Sts., San Antonio.

Outer walls are stuccoed with Micolithic buff colored plaster, trimmed with blue tile base, 22 inches high, around the building. Mortar joints also are buff colored.

Pilasters are capped with blue, black and red tile and a frieze of similar colors extends entirely around the building at the eaves-line. The outside wall around the small windows in the toilet and rest rooms is finished in blue tile identical with that used for the base.

Over the main doors, both in the front and the rear of the station, and over the doors to the rest rooms, are tile plaques of the Humble emblem, or monogram.

Blue tile bases and colored tile caps are also placed on the canopy columns. The canopy itself is of thin construction, trimmed on the outside with copper frieze of Oriental design. Roof covering consists of standing seam copper sheets identical with those used on the building proper.

The ceiling of the canopy is finished in buff colored stucco. Lighting is with specially designed ceiling reflector of thin construction. Similar lighting fixtures are used in the office and sales rooms.

Interior walls of the station are finished in dark, medium and light brown, hard paving brick. Ceilings are of Celotex, trimmed with Celotex strips, giving panel effect.

Foundations are generally of reinforced concrete, but special pier construction was necessary in building the San Antonio station pictured herewith. The swelling of the surface soil, peculiar to San Antonio after it becomes wet, causes a heaving that had to be recognized in construction.

Station driveways are of reinforced concrete, six inches thick. Washing and greasing racks are of special design, consisting of pipe columns with cast iron caps and bases.

Roof construction of the racks is of framework designed to effect as thin a frieze as possible, in order to harmonize with the station canopy. Roof covering is of galvanized steel, painted brown. Ceilings are of sheet rock.

A FENCE of special Humble company design, an ornamental panel type, surrounds the grounds. It is painted in the company colors.

Four flood lights are of new type 1000-watt capacity per lamp. Two lamps are on each of two standards placed on opposite sides of the station. The entire grounds are graded and planted in Bermuda grass. Provision also has been made for shrubbery and flower beds along the fence.

B-type stations include an office, 8 x 14 feet, and an air compressor and storerooms, 5 x 14 feet, in line with the canopy. To the right is the battery and ignition service room; to the left the tire and accessory sales room. Each measures approximately 12 x 15 feet.

On the right end of the station is the ladies' rest room, equipped with console mirror, dressing table and settee. At the left are provided individual toilet rooms for white and negro employes.

Along the Air Lanes

Emory B. Bronte, in charge of the Associated Oil Co.'s aviation sales department at San Francisco, personally covers all his territory on the Pacific Coast in a company-owned airplane. In addition to creating sales impressions and generally contributing to the advance of aerial navigation, use of the department plane permits determination of needs of flying accounts, wishes of pilots regarding deliveries, and studies of actual operating conditions. Mr. Bronte is a senior lieutenant in the United States Naval Aviation Reserve.

* * *

James H. Hall, manager of The Texas Co. of Mexico, S. A., has returned to Tampico headquarters after an airplane trip to Houston.

* * *

The Texas Co. has completed an airplane landing field at its Ardis refinery and tank farm on the west bank of Red River, about two and a half miles from the business center of Shreveport. The landing field has an area of about 150 acres and will be known as Texaco airport. Use of the airport will be free to aviators visiting, or living in Shreveport.

* * *

E. H. Hilpp, Louisville, head of Kentucky Consumers Oil Co., and president of Independent Oil Men of America, is arranging a party of Kentucky oil men to fly to the annual marketing congress which I. O. M. A. is arranging to hold at the Stevens hotel, Chicago, Nov. 19, 20 and 21. Col. Hilpp is an enthusiastic booster of aviation.

JOHN E. CURRAN

Head of the legal department, Independent Oil & Gas Co., just as the pilot yelled "All Aboard," on the regular Tulsa-Oklahoma City air line

MR. AND MRS. J. M. HOLLISTER

Mr. Hollister is general manager of the marketing department of the Continental Oil Co.

Mr. and Mrs. J. M. Hollister, Denver, left Tulsa Sept. 17 with Pilot Reavis for home. This incident illustrates the reliance now placed on the air method of travel by executives of the Continental Oil Co. Mr. Hollister is general manager of the marketing department of that company and makes many of his trips to distant points in the company's Ryan monoplane, "Whirlwind" powered.

The Continental operates over much territory. In a marketing way it covers all of the Rocky Mountain states, New Mexico, parts of Kansas, Oklahoma, Missouri, Arkansas and Texas. In a producing way it covers about as much territory with California added to the above list. Consequently, the trips are long.

Last spring Pres. S. H. Keoughan became "air minded" and got the company to buy a Ryan. He was the chief customer at first, but hurry-up calls attended to by other executives presently increased the demand on the ship's time and it is now booked nearly all the time. It has flown about 250 hours.

The trip to Tulsa by Mr. and Mrs. Hollister was the second one within seven days. From Denver to Tulsa is six hours, ordinarily. The Hollisters started home late Thursday, however, and planned to spend the night in Dodge City, Kans. Continental executives coming to Tulsa by plane save about 24 hours over the railroad time.

One of the interesting trips Continental officials take in the ship is that from Denver to North Park, Colo., where the company is developing an oil field. It is necessary to fly over the Continental divide to get there, at an altitude of 11,000 or 12,000 feet.

Richfield Oil Co., Los Angeles, sponsors of the recent National Air Derby, shipped gasoline and oil from the west coast to Roosevelt field, Long Island, for the fueling and lubricating of planes, most of which was done by this company.

A banquet was tendered contestants in the race from New York to Los Angeles by Richfield at the McAlpin hotel, New York, Sept. 10. W. O. Headley, W. A. Burns, Trevor Williams and Ivan Silvera, all Richfield men, and C. V. Clair of the Acewood Petroleum Corp., New York, were present.

Other oil companies with fueling stations at Roosevelt field were the Kendall Refining Co., Pennzoil Co., Union Oil Co. of California, and Tide Water Oil Co.

* * *

C. M. Fuller, vice-president, Richfield Oil Co., and A. C. Woodman, president of Acewood Petroleum Corp., flew from San Francisco to Los Angeles, Friday, Sept. 14, in 2 hours and 15 minutes. The trip, covering approximately 325 air miles, was made in Richfield's tri-motor Fokker monoplane.

* * *

A committee of Sweetwater, Texas, citizens have been advised by the attorney general's department at Austin that the state does not oppose issuance of bonds for airport construction. The Sweetwater Board of Development sought information before going ahead with expenditure of about $30,000. Other towns that have established airports adjacent to west Texas oil fields include, Abilene, Colorado, and Amarillo. An airport at San Angelo is also planned.

* * *

Aviation training schools are to be set up at important cities in this country by Curtiss Flying Service, Inc., recently incorporated in Delaware and acquiring the entire capital stock of Curtiss Flying Service of New York, heretofore owned by Curtiss Aeroplane and Motor Co. The same type of flying is to be done at these fields as at the Mineola, New York field the Curtiss interests have maintained since the war.

"A survey of the country has been going on for more than a year looking to the establishment of these fields and agencies," says a statement announcing the new company. "All officers of the Curtiss company have become thoroughly convinced that there is a keen demand at all important centers for thoroughly up-to-date training schools and that in many centers flying is held back because of the lack of such schools."

It is the company's plan to also

establish three advanced training schools; one on the West Coast, one on the East Coast and one in the Middle States.

In connection with all these fields agencies will be maintained for the sale of products of the Curtiss Aeroplane & Motor Co. About $5,800,000 is being spent by the Curtiss company in plant expansion. By the beginning of the flying season of 1929 the company hopes to be able to offer an "almost complete line of planes and motors, ranging from the small low-priced sturdy airplane of low power to the largest transports capable of carrying 10 to 20 passengers and including also fast commercial planes of semi-military type, mail planes and so on."

* * *

The Union Oil Co. broadcast the afternoon events of the National Air Races and Aeronautical Exposition at Los Angeles for nine days beginning Sept. 8. Major oil companies sponsored the exposition, and made monetary advances. Approximately 500 airplanes were at the exposition.

* * *

A. E. Humphreys, Jr., president Humphreys Corp., arrived in Houston from Denver Sept. 22 on the first lap of an air trip to eastern points. He was in a Fokker Special Universal monoplane, powered with a Pratt & Whitney Wasp motor. Eddie Brooks is the Humphreys pilot.

C. V. Clair, Acewood Petroleum Corp., and George Haldeman pilot of the Schlee-Brock Bellanca entry in the National Air Derby, at Roosevelt field before the take-off. Haldeman piloted the plane that carried him and Ruth Elder almost across the Atlantic. He also piloted the Schlee-Brock plane in the National Air Tour in July.

Specifications of Oils Used In Airplane Engines

CLEVELAND, Sept. 22

OIL marketing companies are beginning to take an interest in lubricants for airplane motors as the commercial use of aviation expands. Some of the airplane engine manufacturers make definite specifications for their engines, a few mention brands, and others recommend the specifications used by the United States government, which are:

	Grade 1	Grade 2	Grade 3	Grade 4
Flash, minimum	400°F.	400°F.	450°F.	450°F.
Viscosity @ 210°F.	75-85	90-100	90-100	115-125
Pour point, maximum	15°F.	30°F.	45°F.	45°F.
Acidity—neutralization mg. of KOH to 1 g. oil	0.10	0.10	0.10	0.10
Emulsion test, oil of all grades shall separate completely in 1 hour at 180° F.				
Carbon residue, maximum	1.5%	2%	2.5%	2.5%
Precipitation number, maximum	0.5	0.5	0.5	0.5

All grades must be only refined petroleum oils without the admixture of fatty oils, resins, soap or other compounds.

A canvass of leading airplane motor manufacturers gave these recommendations:

Allison V-1410, V-1650 and VG-1650—Summer, grade 3, and winter, grade 1.

Curtiss OX-5—Summer, Mobiloil B and D, Gulf 90-95, Gulfpride Oil 120, and Hy-Vis extra heavy. Winter, Mobiloil A and Gulfpride Oil 120.

Curtiss K-6, C-6 and C-6A—Summer, Mobiloil D, Gulf 90-95, Gulfpride Oil 120, and Hy-Vis extra heavy. Winter, Mobiloil D, Gulf 75-85, and Gulfpride Oil 120.

Curtiss Model D-12 and Conqueror—Summer, Mobiloil B and D, Gulf 90-95 and 115-125, Gulfpride Oil 120, and Hy-Vis extra heavy. Winter, Mobiloil D, Gulf 75-85, and Gulfpride Oil 120.

Fairchild Caminez Model 447-C—Any oil with viscosity of 115-130, preferably around 120 at 210 degrees F.

Irwin—Gravity 27.5 degrees A.P.I.; flash 550; fire 625; vis. at 100 degrees F. 1750; vis. at 210 degrees F. 140; color No. 8.

Kinner—Summer, gravity 27 degrees; flash 540; fire 620; vis. at 210, 140. Winter, gravity 27 degrees; flash 505; fire 575; vis. at 210, 110.

LeBlond—Kendall G oil.

Packard—Grades 2 and 4 of government specifications.

Pratt & Whitney—For ordinary air temperatures of 40 to 90 degrees F.: flash, 465 minimum; fire 520 minimum; vis. 105-115 at 210 which corresponds to S.A.E. 60.; specific gravity 0.886; cold test 40 degrees F. but lower if possible.

Velie—Mobiloil B or high grade oil of similar body when ground temperature is above freezing both in summer and winter when preheating is possible in winter. When preheating is impossible Mobiloil A or similar bodied oil.

Wright—Flash not lower than 400; vis. summer 90-105, winter 75-85; pour points, summer less than 45, winter less than 15; acidity, same as U. S. specification; emulsion, same as U. S.; carbon shall not exceed 2.5 per cent; precipitation, same as U. S. All tests to be in accordance with U. S. Bureau of Mines Technical Paper 323A.

Standard Men Assist in Picking Airport

CHICAGO, Sept. 22.—Boone, Iowa, is anxious for an airport and the Chamber of Commerce is making a strenuous effort to select a good location and arrange to equip it with most modern facilities. H. K. Apel, assistant to Allan Jackson, vice-president, Standard Oil Co. of Indiana, in charge of aviation, and John P. Porter, the pilot in charge of the company's aviation activities, were in Boone Sept. 20 to assist local men.

The two Standard men flew from Chicago in the company's three-passenger Laird plane Sept. 19, made stops at Moline, Ill., and Des Moines, and proceeded to Boone to spend the next day. After giving a number of Boone people of influence a look at the town from the air they dined with the chamber's aviation committee which Mr. Apel addressed.

On the return trip the two Standard men visited Mankato, Minn., and Mason City, Ia., leaving Boone at 9:10 a. m. and reaching Chicago at 4:50 p. m. They covered 600 miles and averaged 114 miles per hour on the whole trip.

Standard Oil Co.'s Ford plane, Stanolind, is in Chicago, being tuned up for another trip west next week.

Varied Program Planned for Four State Jobbers at Kansas City

KANSAS CITY, Sept. 22

LUBRICATING oils, gasolines and legislation tax matters will be studied by Mid-Western jobbers at the annual "Big Four State Convention" to be held at Kansas City, Oct. 3, 4 and 5, it was announced today by George S. Allee, president of the Missouri Oil Men's Association. The convention is to be held at the President hotel.

Individual state meetings of the Kansas, Nebraska, Iowa and Missouri jobbers organizations will be held on the morning of Oct. 3 after the close of registrations. The Missouri Oil Men's Association will hold its annual election of officers at the time.

The afternoon session will be the first general meeting. It is to be opened by R. R. Irwin, vice-president of the White Eagle Oil & Refining Co. with an address on the development of anti-knock motor fuels. The Society of Automotive Engineers has promised to send a speaker to the meeting to talk on the necessity for using S. A. E. specifications including viscosity numbers in the sale of lubricating oils.

Dr. Ralph R. Matthews, formerly head of the lubricating oil department of the Roxana Petroleum Corp., also will present a paper on lubrication problems. To complete the session on lubrication, C. C. Wagner, former professor of chemistry at the University of South Dakota and now with the Dakota Oil Co., will present a paper on Lubrication of the Automobile.

Thursday morning Frank E. Packard, tax attorney for the Standard Oil Co. of Indiana, will address the four state jobbers on Taxation and Legislation. He will be followed by Warren C. Platt, publisher of NATIONAL PETROLEUM NEWS, who is to speak on the Q. D. A. and Marginal Contracts.

At the luncheon Thursday noon, Dr. Stanley Krebs, president of the Institute of Mercantile Arts, New York, will be the principal speaker.

The Kansas City Oil Men's Club is preparing entertainment for visiting jobbers which will include a banquet to be held on either Wednesday or Thursday night. Friday will be devoted to trips to refineries, jobbing and compounding plants in the city.

Central Committee Drafts A.P.I. Code of Marketing Ethics

Staff Special

CHICAGO, Sept. 22

THE undertaking of the American Petroleum Institute to develop a code of sound and uniform marketing practices for the oil industry is well on its way to a successful culmination, according to reports from members of the Central States committee. This committee has held a meeting, conducted three strenuous sessions in 18 hours and come out of it with a draft which has the unanimous approval of its members.

Henry M. Dawes, president of Pure Oil Co., Chicago, is chairman of the Central States committee, one of six committees appointed by E. W. Clark, vice-president, Union Oil Co. of California, as president of the A. P. I. All six regional committees were requested to meet separately and each draft a code satisfactory to its members.

Presumably the six drafts will be consolidated into a final code at some meeting of the six chairmen, comprising a central committee. The final draft will probably be presented to the A. P. I. for approval at its annual meeting in Chicago, Dec. 4, 5 and 6.

The Dawes committee assembled in Chicago Sept. 20. Some of the members brought business associates with them who took part in the deliberations. Thirteen men helped to draft the code.

President Dawes of Pure Oil Co. was accompanied by L. S. Wescoat, vice president in charge of marketing. E. G. Seubert, president, Standard Oil Co. of Indiana, was accompanied by Allen Jackson, vice-president in charge of marketing. Homer H. Johnson, Johnson Oil Refining Co., was accompanied by his brother, I. H. Johnson, secretary and treasurer of the company.

Others present included W. T. Holliday, president, Standard Oil Co. of Ohio; A. S. Close, Hickok Oil Corp., Toledo, O.; R. S. King, Refiners Oil Co., Dayton, O.; A. J. Callaghan, American Oil Corp., Jackson, Mich., and E. H. Hilpp, Kentucky Consumers Oil Co., Louisville, Ky.

F. Godber, president, Roxana Petroleum Corp., St. Louis, was absent but was represented by T. F. Lydon, vice-president and treasurer, and J. A. Strong, distribution manager.

The committee sat in conference from early morning until midnight, with only short recesses to eat, but they finished their work. Only routine matters of verbiage remained to be developed when they adjourned. Chairman Dawes was left with the task of couching three or four unfinished paragraphs in plain English and forwarding a final draft to each of the members for approval.

The drafts have already been forwarded from Pure Oil offices and committee members are expected to pass their opinion about the proposed code by Sept. 27.

* * *

SAN FRANCISCO, Sept. 24.—The A.P.I. Pacific coast committee charged with drafting a tentative code of marketing practices has held one meeting.

"The committee will undoubtedly have a complete code to submit to the general committee sometime prior to the annual meeting of the institute in December," said K. R. Kingsbury, president of the Standard Oil Co. of California and chairman of the Pacific coast committee.

Mr. Kingsbury said the committee did not expect to publish its report until it is submitted to the general committee.

* * *

TULSA, Sept. 24.—Definite recommendations were expected to be made by the Oklahoma-Kansas regional committee on ethics to the American Petroleum Institute national committee at a meeting to be held Sept. 25 in Tulsa, according to P. M. Miskell, Empire Oil & Refining Co., chairman of the Oklahoma-Kansas regional committee.

* * *

WICHITA FALLS, Tex., Sept. 24.—The Texas-Louisiana-Arkansas regional committee on ethics is scheduled to meet in Dallas Oct. 5, according to Roy B. Jones, Panhandle Refining Co., chairman of the regional committee. Members of the committee are now holding meetings in their respective localities, according to Mr. Jones, to assemble ideas and suggestions. These will be put into final form by the committee at the Dallas meeting and submitted to the Institute's national committee.

HARRISBURG, Pa., Sept. 24.—Speakers for the first annual convention of the Pennsylvania Independent Oil Men's Association, which will be held at the Penn Harris Hotel here on Oct. 15, 16 and 17, according to R. A. Overholser, executive secretary, are:

Frank W. Lovejoy, sales manager, Vacuum Oil Co., New York, will speak on merchandising petroleum products.

Dr. Hugh P. Baker, manager, trade association department, Chamber of Commerce of the United States, Washington, will talk on the economics of organization.

Cooperative Plan Saving 91,000,000 Feet Of Gas Daily in Ventura Field

By T. E. Swigart*

Presented before district meeting Division of Development and Production Engineering, American Petroleum Institute, Los Angeles, Sept. 21

DURING the latter part of 1926, the constantly increasing gas production and gas waste in California and particularly in Ventura field, prompted the operators of that district to consider means for controlling the field's gas and oil productions. The blowing of surplus gas into the air was disturbing, of course, because of the economic waste of an unusually convenient and adaptable natural fuel, but Ventura operators were faced with another local problem even greater in importance. By that time oil producers were generally recognizing the importance of "gas energy" in the recovery of oil, and the steady increase in the gas-oil ratio of Ventura field led to the conclusion, that, if possible, something must be done to check the increasing rate of dissipation of the field's energy or else the ultimate oil production would suffer. In considering the objects of subsequent cooperative efforts in operating the field, it must be borne in mind that the operators were, first of all, oil producers and were so interested in guarding their oil resources that, aside from the standpoint of natural gas waste, the control of gas production was essential.

Ventura field is more distant from principal natural gas markets than most other southern California fields and because of the costs of transportation, must take second place in supplying those markets with gas. Gas wastage at Ventura, therefore, has been greater over a longer period of time than from fields in the Los Angeles Basin. True, the Basin fields have had periods of gas waste, but these have lasted only a few months while the fields were in their flush stages. Ventura operators have had to bear the continued loss of possible large revenues from the sale of surplus gas because of difficulties in controlling the gas production rate and, therefore, keeping the volumes of surplus gas within the limits of available markets. It is apparent, therefore, that by 1926 the problems of dissipation of gas energy and the loss of revenue were incentives enough for cooperative control of field operations aside from the public's interest in gas conservation.

In December, 1926, a committee of engineers known as the Ventura Conservation Committee was appointed with members representing the Shell Co. of California, Associated Oil Co. and the General Petroleum Corp. This committee's duties were to make recommendations to the company managements that would lead to the control of gas production and reduction of gas-oil ratios. The committee soon made recommendations that led to the shutting in of some 7,723,000 cubic feet per day of gas production with only 617 barrels per day of oil production. The gas-oil ratio of the shut-in production was 12,510 cubic feet per barrel as compared to an average field gas-oil ratio of 4200 cubic feet per barrel, demonstrating that by proper selection of wells and control of production, the waste of natural gas energy in the reservoir could be reduced.

T. E. SWIGART

By May, 1927, however, conditions were becoming more acute and the three operators concerned decided to reduce their respective oil productions by approximately 33 1/3 per cent. This resulted in reducing the field oil production by approximately 15,700 barrels per day and of the gas production by about 60,000,000 cubic feet per day. Fig. 1 shows the effects of proration, although several new wells were completed at about the time the plan went into effect and they somewhat obscured the actual results. One point is clearly shown by the curve, however. Prior to beginning proration, the field gas-oil ratio had been increasing steadily over a several months' period at the rate of about 240 cubic feet per barrel per month. Coincident with the beginning of proration, this increase was arrested and the field gas-oil ratio continued at the same and even lower levels thereafter.

This plan was put into effect with the understanding that once an operator had reduced his daily oil production by the required amount, no further changes were to be made in the flow beans in his wells. This allowed the proration to "wear off" gradually as the natural decline of the field took place. Due regard was given to the choice of high gas-oil ratio wells in shutting in and pinching back oil production to meet the operators' respective quotas. This work was in the hands of the same engineering committee that had planned the first cooperative work in December, 1926.

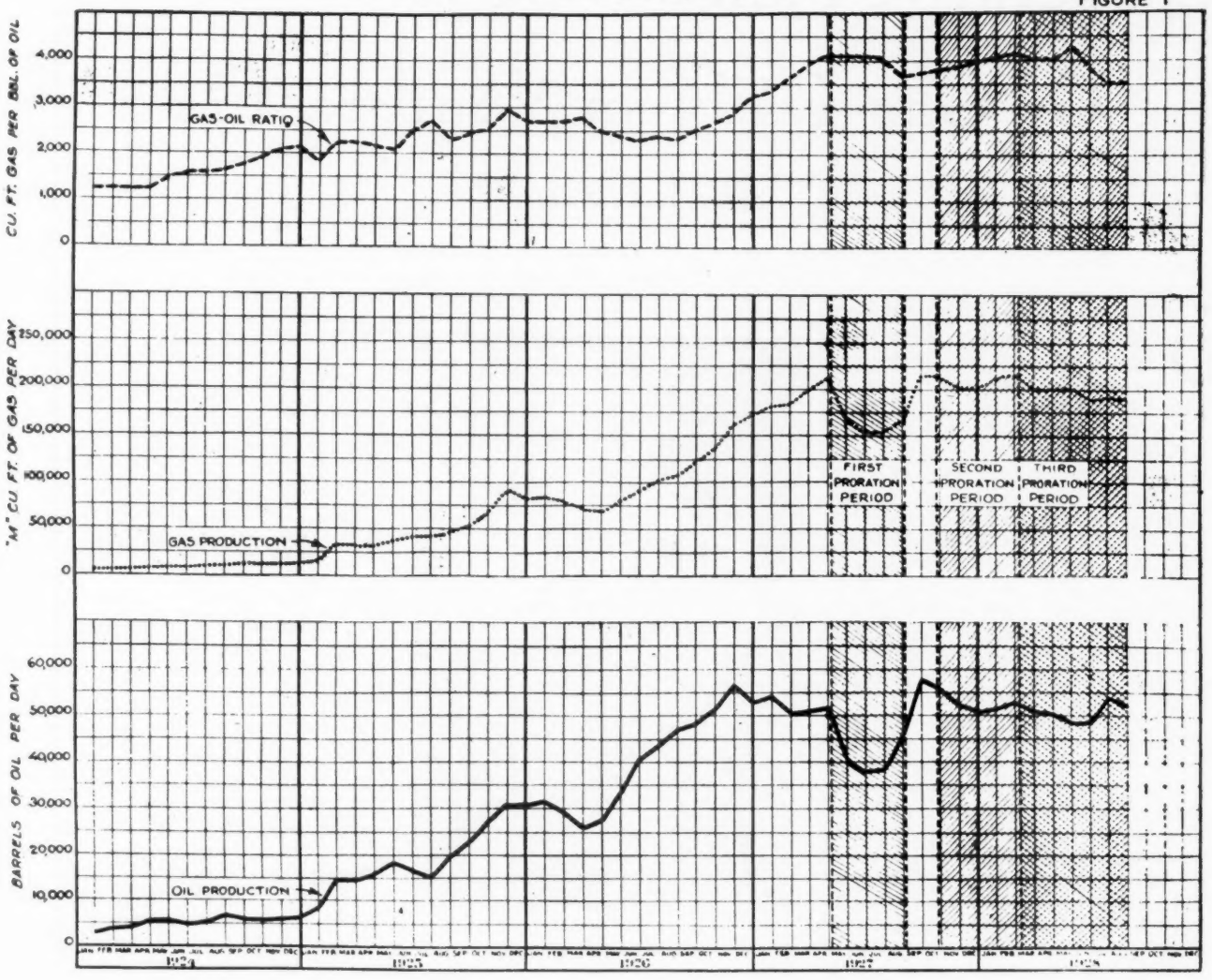
After four months one operator gave notice of termination of the proration plan and the wells were opened again to their normal rates on Sept. 2, 1927. Fig. 1 indicates the response in production from these wells after four months of high back pressures. The field's oil production increased about 8500 barrels per day and the gas production by about 45,000,000 cubic feet per day.

In October, 1927, the same Ventura operators, upon request of the State Oil and Gas Department, agreed to reduce the total field gas production by 25,000,000 cubic feet per day. It was argued that because the object was to conserve gas and reduce gas wastage, the basis of the proration should be gas. This plan was put into effect on Oct. 25, 1927, but it was found that every operator in effecting his reduction of gas production, insisted first of all, upon guarding his rights to produce oil and to protect his oil reserves against unfair drainage by a neighbor. The oil had a definite present value. It could be

*Chief Production Engineer, Shell Co. of California, Los Angeles.

VENTURA FIELD GAS AND OIL
PRODUCTION AND GAS OIL RATIO

FIGURE 1



sold or at worst stored in a practicable manner at a cost that was not prohibitive. On the other hand, surplus gas, beyond the extent of the markets, had no value. It could not be sold at any price and in so far as had been proved by experience, could not be stored in a practical and economical manner. The storage of gas is just now being developed along full-scale lines, and the extent of the final recovery of stored gas is still an unknown problem.

Another subject of debate was whether a gas conservation program should be based on gas production or gas waste. One operator might produce with a high gas-oil ratio, but because of his good fortune in having been able to obtain favorable gas contracts might have little or no waste gas. Another operator might produce with a low gas-oil ratio, but because he had no contracts to sell gas (and it must be remembered that the market is extremely limited) he might be a large waster of gas. To meet the public demand, it might be argued that each operator should curtail his operations until his gas waste was eliminated. This would not be fair to the operator with low gas-oil ratios and no gas contracts and would be detrimental to the field as low gas-oil ratio wells would have to be shut back drastically while high gas-oil ratio wells were being allowed to produce.

In effecting a gas conservation plan in a field it might be desirable to prorate on the basis of gas production and gas-oil ratio, but this is not always equitable because an operator's position on the structure greatly affects his gas-oil ratio. Wells on top of the structure at Ventura almost always have high gas-oil ratios. It would be unfair, for example, to reduce the gas production of a small operator with only a few high gas-oil ratio wells, by 25 per cent and at the same time to allow a large neighboring operator with both high and low gas-oil ratio wells to effect a 25 per cent reduction in his gas production by shutting in a few wells with high gas-oil ratios and small oil production. It is easily conceivable that the small operator might have to reduce his oil production by the full amount of 25 per cent in order to effect his 25 per cent decrease in gas production while the large neighboring operator could choose a few high gas-oil ratio wells for proration and obtain his 25 per cent reduction in gas production with a reduction of only 10 or 15 per cent in oil production. Bearing in mind that oil is the most valuable commodity of the two, this would unfairly penalize the operator who had wells only on top of the structure.

Thus, while the second proration program presumably was developed on the basis of reduction in gas production, it was recognized at once that no operator was willing to effect his proration without duly guarding his oil reserves against unfair drainage. Actually, the second proration was effected by making line well agreements on the basis of oil production. The announced cut of 25,000,000 cubic feet per day in field gas production was effected, but it only served to determine the overall extent of the proration and was not used in making actual detailed operating agreements between companies.

During the second proration program, as with the first, wells were not changed after proration was once fully in effect. In other words, wells were beaned back the required amount

and then proration was allowed to "wear off."

On March 7, 1928, the third proration plan was put into effect and several new principles were developed. This proration involved a reduction of 20 per cent in each operator's production. In light of previous experience it was decided simplest and most satisfactory all around to apply this 20 per cent cut to each operator's oil production and to allow the engineering subcommittee to plan the details of the program so that the greatest reductions in production were made on high gas-oil ratio wells.

One of the new principles applied in effecting this proration resulted from a detailed study of production records of individual wells. Past observation had shown that during the flowing life, gas-oil ratios always increase as Ventura wells become older. Frequently ratios reach figures as high as 10,000 or 20,000 cubic feet of gas per barrel. The Shell Co. through keeping accurate daily records of oil and gas production and other pertinent well data, discovered that by proper control of back pressure, it was possible to arrest the usual upward trend in gas-oil ratio of a Ventura flowing well and at times even to decrease the ratio. This principle is completely discussed in another paper by the writer[1] and will not be described again.

Increase of back pressure usually decreases the present daily oil and gas production of a well below the otherwise normal level, although there is much evidence that points to a great ultimate production of oil by such methods of handling wells. If all wells in a field are handled in accordance with the principles of back pressure control, the total ultimate recovery of a field should be increased, although the time required for reaching the ultimate limit of production would, of course, be greater than with ordinary flowing methods. Back pressure control has several advantages in times of over-production of oil and gas. It reduces gas wastage by decreasing the production rate and consequently makes possible greater ultimate revenue from the sale of gas. It reduces the oil production rate and relieves the operator of some expense in building extra oil storage reservoirs. It increases oil recovery efficiency and therefore total ultimate recovery of oil. A moderate drilling program is justified if gas-oil ratios of producing wells can be maintained at reasonable levels, because producing wells will not be so seriously dissipating the gas energy from undrained parts of the reservoir.

Back pressure control has not been successful in securing moderate gas-oil ratios for all wells at Ventura because, as has been learned from experience, wells can be controlled more successfully if taken in hand shortly after completion than if allowed to produce at rapid rates for several months or years. Many Ventura wells were old when the control methods were first applied. In general, the Shell Co. has been able to maintain gas-oil ratios of new wells at fairly constant levels and even to lower the gas-oil ratios of a number of wells. In experimenting with old wells which had attained high ratios, it was found difficult to lower those ratios and in most cases wells of this kind have finally been shut in completely to save gas.

Another important new principle in the third conservation program was the establishing of a total potential oil production rate curve for each operator and the requirement that his production be maintained at all times 20 per cent under this potential production curve. The Engineers' subcommittee established the total potential production for each operator for the day of March 7, 1928, which was the effective date of the third proration program. Beginning at that point on the operator's total daily oil production curve, the average decline curve for his properties which had also been established by the engineering subcommittee from previous records of production, was projected ahead and recognized as the operator's total potential oil production curve. A second curve was also drawn through points which were 20 per cent below the total potential curve and this second curve represented the operator's allowable daily production. Suitable modification of the "potential" and "allowable" curves was made for new wells, it being understood that a new well was to produce 30 days at a normal rate before it was to be included in the production subject to proration.

This program has been worked out with fair satisfaction although it is now recognized that after a few weeks it resulted in a proration of more than 20 per cent of the real potential production rate at this time. As a result of beaning back flowing wells to effect the reduction of production rate, the average decline rate of each well so beaned has become less. This in turn has resulted in a slower decline rate for each operator's field production. This observation bears out the claim of the engineering subcommittee made prior to the beginning of the conservation program, that a 20 per cent reduction of the present oil production rate would not cause an ultimate loss in oil because production declines would be slower.

The third or present Ventura proration program has now reached a point where a total of 24 high gas-oil ratio wells have been shut in entirely. Most of these wells are on the crest of the structure. Their total oil production at the time of shutting in amounted to 4420 barrels per day and their total gas production 41,621,000 cubic feet per day. This means that the gas-oil ratio of shut-in production was 9420 cubic feet per barrel as compared to the average field gas-oil ratio of 4200 cubic feet per barrel. The oil production of wells shut in, however, only amounts to 41 per cent of the proration allotted to the entire field and the balance has had to be effected by "pinching back" flowing wells.

After six months of proration it is difficult to estimate accurately the potential production of the field. An extension of the decline curves with suitable corrections for new wells indicates that the total potential field production would have been about 63,510 barrels per day on Sept. 18, 1928. Actually the field oil production was about 53,100 barrels per day on that date indicating that the effective reduction of oil production was 16 per cent as compared to an intended reduction of 20 per cent. One reason for this is that two operators do not participate in the proration program and if their productions were deducted, the amount of proration of the three participating operators would be increased. A second reason is that the natural declines of wells are not rapid enough to hold each operator's curve down to the calculated allowable curve because of the effect of proration in flattening production curves. It is necessary, therefore, for an operator to continue pinching his wells if he is to hold his production to the allowable rate. This has progressed to the point where operators are now pinching wells of comparatively low gas-oil ratio, and consequently nothing is gained from the standpoint of oil recovery efficiency by further cuts.

In so far as can be estimated the proration plan is now holding the field gas production at 191,000,000 cubic feet per day as compared to an estimated potential production of 282,500,000 cubic feet per day resulting in a daily saving of some 91,500,000 cubic feet of gas and this amount is approximately 32.5 per cent of the estimated total potential production. The fact that 32.5 per cent of the gas production has been pinched back with only 16 per cent of the oil production shows at once the advantages to the field in increased recovery efficiency.

All of this 91,500,000 cubic feet per day of gas would have to be wasted if it were being produced. By restricting the rate of gas production, some of the gas will ultimately be sold at 10 cents per thousand, and even assuming that only one-half of it can be produced in the future at such rates that it can be sold, the revenue from the saved gas will amount to $4,800 per day.

Furthermore, it is estimated that

[1] Swigart, T. E., Methods of Effecting Gas Conservation and Increased Recovery Efficiency in Ventura Field, California, paper delivered before the Division of Development and Production Engineering of the American Petroleum Institute, Colorado Springs, Colorado, June 15, 1928.

the total field gas-oil ratio, if all wells were allowed to produce at normal rates, would be approximately 4450 cubic feet per barrel at the present time. The present field ratio is about 3600 cubic feet per barrel indicating a saving of 850 cubic feet of gas for every barrel of oil produced.

To give some idea of the possible value of this decrease in gas-oil ratio, assume that the saved gas will some day produce oil at the rate of 4000 cubic feet per barrel. This would mean that for every barrel being produced under present methods, an extra 0.21 of a barrel will be produced ultimately, or stated differently, with a present total field oil production of approximately 53,000 barrels per day, ultimate production is being increased at the rate of 11,100 barrels per day by the present methods of gas conservation. Even if the saved gas were only one-half as effective as at present in driving oil from the sands, the daily rate of increase in ultimate recovery would be 6260 barrels per day, which is equivalent to an increase in recoverable oil reserves of 12 per cent.

As might be expected, many unforeseen difficulties have developed and the conservation program has not been perfect in every sense. The accomplishments measured in terms of gas saving and increased recovery efficiency however, have been of major importance, and it is doubtful if any of the operators involved would withhold their support if they were again confronted with the same problem.

Big Saving of Gas in 5-Month Program

By F. W. Lake*

Presented before district meeting Division of Development and Production Engineering, American Petroleum Institute, Los Angeles, Sept. 21

EARLY in 1928 the anticipation of an overproduction of gas in the Los Angeles Basin accompanied by the usual decrease in consumption occurring during the summer months led to an investigation for the purpose of devising means for the conservation of this excess gas. Storage and repressuring offered one of the best solutions. The Stearns property of the Union Oil Co., located in the central part of the Brea-Olinda field in Orange county, was particularly adapted to this work. The Upper Oil Zone was chosen as the best horizon for gas storage.

Structurally, the upper zone is a southerly dipping monocline, outcropping at the surface in the northern part of the property as a seepage and lying some 2500 feet below sea level in the southern part. Plate I shows the structural contours on the top of the zone and the outlines of the seepages as they occur at the surface. The zone is composed of conglomerates and coarse sands interbedded with sandy shales, the whole being more porous than is usual in the district. The development occurred between 1905 and 1915, although the majority of the wells were completed by 1910. The initial production of the wells ranged from 150 barrels daily to as high as 650 barrels of from 17 degrees to 23 degrees A. P. I. with very little water production. From June 1922 to April 1924 and from May 1927 to the present, the property has been shut in. During their producing life, the wells in the area where storage and repressuring has been carried on have produced a total of 4,050,000 barrels of oil and 2,950,000,000 cubic feet of gas. When closed in in May 1927, the production ranged from 70 barrels to 260 barrels daily. Water encroachment had occurred only in a few wells furthest down the dip and in the more depleted area of close spacing.

Plate I shows the closed in gas pressure of the wells on April 1, 1928 after being shut in since May 1, 1927. The higher pressures are recorded on the wells further up the dip and further away from the depleted area to the east. The wells showing little or no gas pressure were standing with the fluid levels from 1200 to 1500 feet above the zone and showing no gas.

F. W. LAKE
Union Oil Co., Brea, Calif.

During April 1928, gas storage was initiated in wells 46 and 52. Plate II shows the change in pressures in the surrounding wells as of May 1, 1928 after 33,944,000 cubic feet of gas had been pumped in well 46, and 111,000 cubic feet in well 52. The two wells, 40 and 50, lying immediately north of the injection wells showed increases in pressure almost immediately and toward the end of the month, well 37, lying two locations north and somewhat east of the injection wells, showed a slight increase in pressure. As indicated by the pressure contours, the injected gas is moving up the dip and easterly toward the area of maximum depletion.

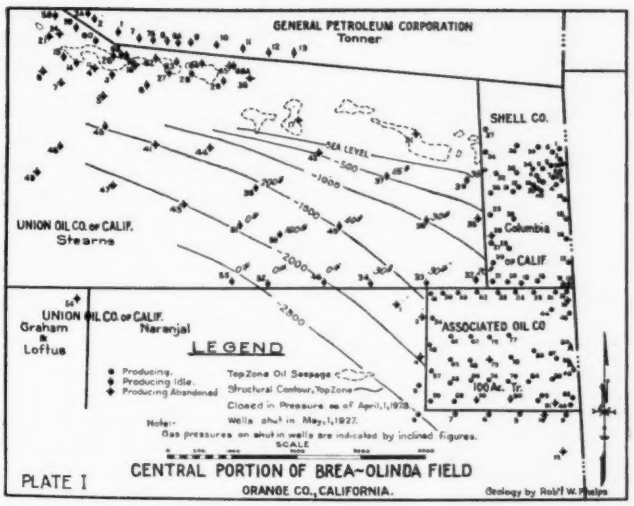
Plate III illustrates conditions on June 1, 1928 after two months of injection. Wells 40 and 50 have continued to increase in pressure as likewise has 37. In addition, the first location east from 46, well 34, has started to show an increase in pressure. During this month, gas storage in well 55 was commenced and a total of 97,272,000 cubic feet of gas had been stored in the three wells.

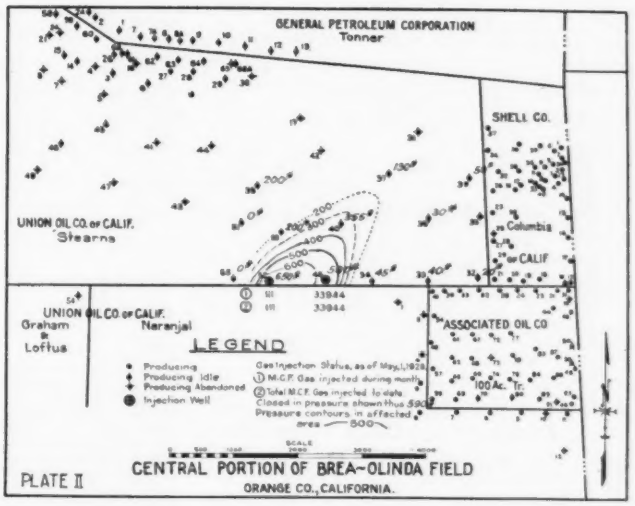
Plate IV illustrates the conditions on July 1, 1928. The stored gas amounted to 145,738,000 cubic feet. Pressures on all wells so far affected continued to increase, and in addition well 33, two locations east of the injection wells, showed an increase in pressure. The gas migration up the dip has ceased, but the easterly migration continued. During this period, the wells in the closely drilled area to the east were being produced. In order to avoid further easterly migration and to hold the gas on the property, the Shell Co. closed in their first two lines of offset wells on July 7, 1928.

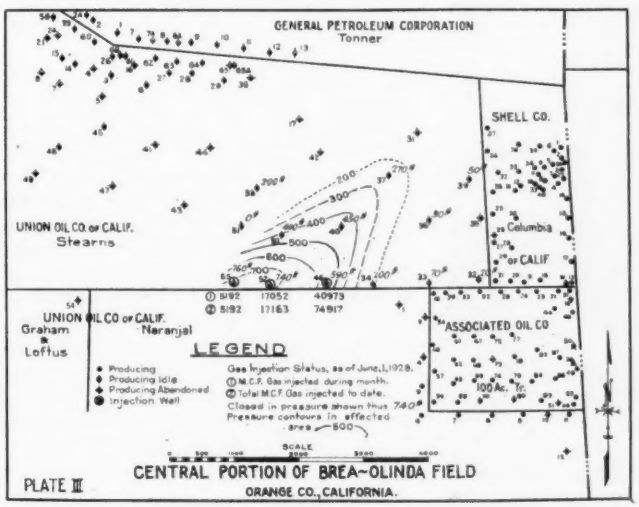
Plate V illustrates the status of the storage program as of August 1, 1928, at which time 209,679,000 cubic feet of gas had been injected in the three injection wells. Northerly and easterly migration had ceased, but all of the wells so far affected showed increases in pressure indicating a compacting of the gas with but little movement out of the immediate area.

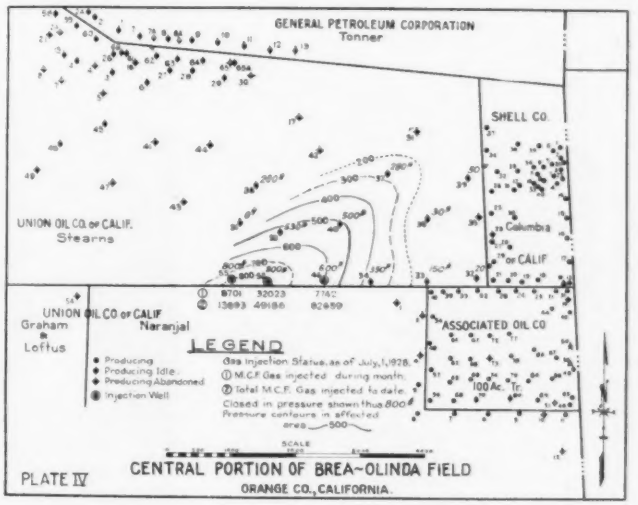
Plate VI illustrates conditions on Sept. 1, 1928. A total of 315,811,000 cubic feet had been injected. The pressure necessary for injection in well 55 was too high for the compressor equipment and very little gas was injected, although the highest safe pressure was maintained on the

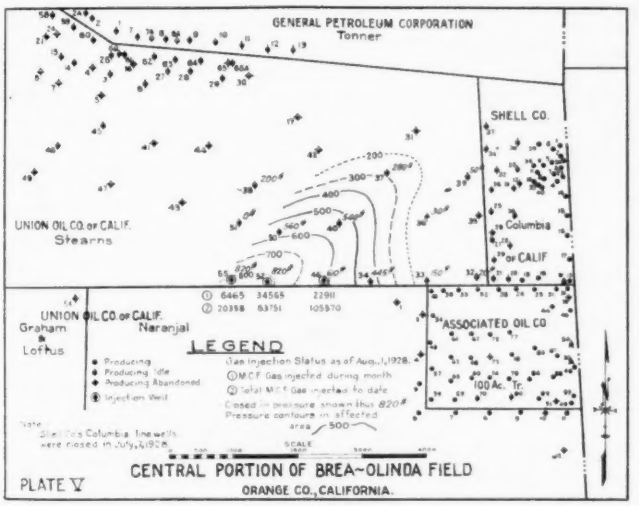
*Superintendent of Production, Orange Division, Union Oil Co. of California, Brea, Calif.

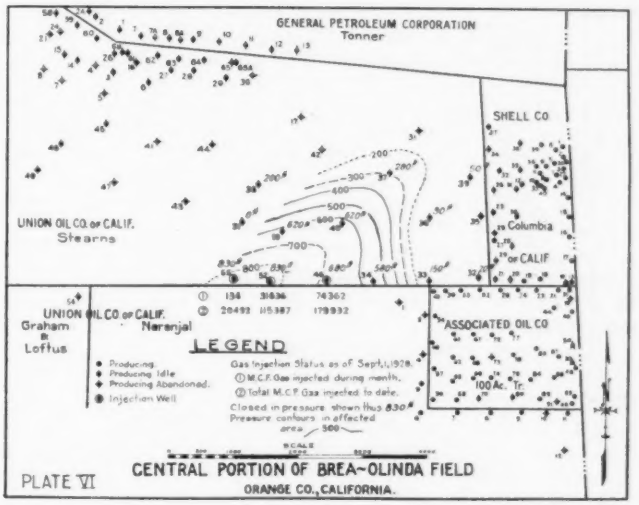












well. There was no evidence of further gas migration, and the increase in well pressures indicated a further compacting of the stored gas.

During the injection of gas in these wells and the gradual building up of the closed in pressures, difficulty has been experienced in preventing leakage in the old casings and packing heads. As fast as this has occurred, surface cement jobs and repacking have been used to correct the conditions and the wells have been kept reasonably gas tight. Injection of gas in wells 51 and 38 was attempted, but the casings could not be made sufficiently tight to prevent leakage at the pressures required for the injection of any appreciable quantity of gas. At their normal pressure, however, no leakage occurred.

During the five-month period of gas storage, there is no evidence of the stored gas leaving the property or the area enclosed in the pressure contours. Production from the producing wells to the east has not been changed. The seepage at the northerly limits of the zone has shown no unusual activity as it is asphaltic and relatively immobile except at an increase in temperature considerably above atmospheric conditions. The storage program is being continued at the rate of approximately 5,000,000 cubic feet of gas per day. The conservation of 316 million cubic feet of gas which other-

wise would have been blown to the air, together with the probability of increased oil recovery, will more than offset the cost of the program and it will be continued until uneconomical pressures are reached, or until there is evidence of the stored gas leaving the property, which does not seem likely in view of the last three months of operation.

Devonian Oil Co. President Host To Exposition Old Timers

TULSA, Sept. 22

"UNCLE JOE"—Joseph H. Evans, of Tulsa, has been appointed official host to the Old Timers who attend the International Petroleum Exposition, Oct. 20-29.

Mr. Evans, one of the industry's outstanding pioneers, is president of the Devonian Oil Co. and a director of the Exchange National Bank, Tulsa. He was born 77 years ago near the site of the Drake well and entered the petroleum industry at the age of 17.

Old Timers' Day at the exposition last year attracted many entries and the list this year is much longer. Oct. 23 has been designated as the day when all of the old timers who are listed will receive medals and other honors and the one who has spent the greatest number of years in the industry will be given the title of Grand Old Man and a gold medal.

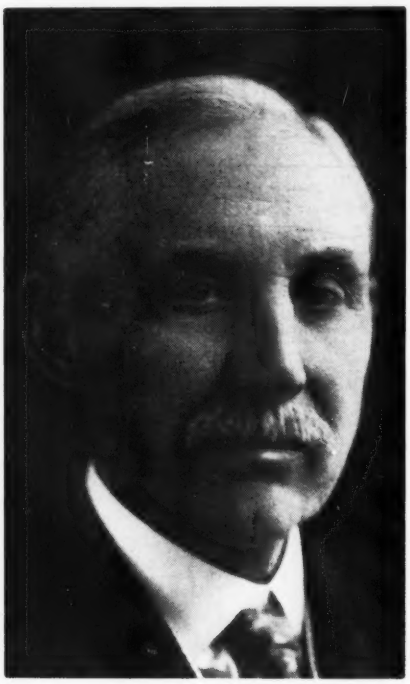
Following is a list of Old Timers named in the roster of the exposition:

Mike McCool, Arondale, Okla., born 1850, entered the industry in 1872; L. D. Gwynne, Tulsa, born 1854, entered 1875; J. J. Varner, Iraan, Texas, born 1884, entered 1898; John W. Gray, Marietta, O., born 1847, entered 1863; Silas M. Morrison, Tulsa, born 1852, entered 1872; E. T. Johnson, Bradford, Pa., born 1839, date of entry unknown; John W. Dwigans, Tulsa, born 1852, entered 1870; Edwin L. Fowler, Tulsa, born 1850, entered 1861.

John C. Looker, Bradford, Pa., born 1854, entered 1876; Walter Milne Dunham, Tulsa, born 1857, entered 1869; Philip Klickner, Skiatook, Okla., born 1853, entered 1865; C. H. Doolittle, Winfield, Kans., born 1855, entered 1870; J. L. Campbell, Cleveland, O., born 1852, entered 1866; J. H. Mook, Ft. Worth, Texas, dates unknown; Carl E. Anderson, Tulsa, born 1846, entered 1864.

Jack Shirley, Tulsa, born 1865, entered 1889; J. B. Crisman, Tulsa, born 1879, entered 1897; T. J. Boyer, Vern Station, Okla., born 1859, entered 1881; Frank Humiston, Tulsa, born 1853, entered 1874; W. A. Hughes, Oil City, Pa., born 1838, entered 1861; Horace Johnston, Corsicana, Tex.

John L. McKown, Sapulpa, Okla., born 1865, entered 1878; John Markham, Sr., Wichita, Kans., born 1842, entered 1876; Alex Stephenson, Tulsa, born 1846, entered 1860.



"UNCLE JOE," Joseph H. Evans, president Devonian Oil Co., who is official host to old timers attending Petroleum Exposition

W. G. McClune, Dewey, Okla., born 1861, entered 1881; E. G. Humes, Mounds, Okla., born 1858, entered 1874; Charles Brant, Indianapolis, Ind., born 1855, entered 1876; Harry Brant, Claremore, Okla., born 1859, entered 1878; C. H. Day, Shidler, Okla., born 1851, entered 1864; Thomas Chestnut, Tulsa, no dates given.

L. S. Albee, Seminole, Okla., born 1866, entered 1881; I. M. Gearhart, Tulsa, born 1852, entered 1866; George F. Wyvell, Okmulgee, Okla., born 1857, entered 1876; James V. Cully, Pampa, Tex., born 1869, entered 1881; W. P. Roach, Oilton, Okla., born 1857, entered 1876.

Tom Eustice, Tulsa, entered 1884; E. H. Tomlinson, Tryon, N. C. born 1844, entered 1865; George C. Partridge, Inola, Okla., born 1861, entered 1876; A. K. Crichton, Inola, Okla., born 1871, entered 1908; W. M. Mills, Osawatomi, Kans., born 1848, entered 1869; Roy C. Williamson, Ft. Worth, Tex.; G. F. Brown, Drumright, Okla., born 1857, entered 1874; Samuel Plumer McCalmont, Franklin, Pa., born 1823, entered 1868.

U. E. McDermott, San Antonio, Tex., born 1863, entered 1877; Guy D. Sequlne, Beggs, Okla., born 1887, entered 1903; Joseph Mortimer, Washington, Pa., born 1847, entered 1868; F. A. Boyer, Temple, Tex., born 1849, entered 1869.

John Christie, McCamey, Tex., born 1851, entered 1871; G. M. Trowbridge, Nowata, Okla., born 1841, entered 1865; John H. Reigel, Kane, Pa., entered 1864; John C. Blood, Conneaut, O., (no dates); E. W. Boyd, Wichita, Kans., born 1874, entered 1888; Jack Sanders, Claremore, Okla., 85 years old, (entry date not given); Joseph H. McDermott, Morgantown, W. Va., born 1871, (no entry date given).

Tim Cushing, Bristow, Okla., born 1859, entered, (no date given); James B. Redic, Stillwater, Okla., born 1879, entered 1895; A. R. Stoughton, Sunbury, Pa., born 1851, entered 1874; R. H. Holmes, Mt. Jewett, Pa., born 1851, entered 1869; Henry B. Webb, Kansas City, Mo., born 1853, entered 1877; Edward R. McMullen, Kenbro, Kans., born 1857, entered 1873; M. R. Haymaker, San Antonio, Tex., born 1845, entered 1865; G. L. Fowler, Tulsa, born 1850, entered 1861.

B. B. Stewart, Brownsville, Tex., born 1861, entered 1888; William "Pat" Malone, Tulsa, born 1845, entered 1882; R. J. Bussard, Tulsa, born 1857, entered 1871; I. W. Hunter, Tulsa, born 1856, entered 1869.

Two "Loreco" Promotions

SHREVEPORT, Sept. 22.—J. D. Flynn, formerly advertising manager for the Louisiana Oil Refining Corp., has been made assistant manager of the southern division in the marketing department. He held the position of advertising manager for three years. G. F. Mathews has been promoted to advertising manager. For the past year he has been advertising manager for the Ohio division with headquarters at Springfield.

LOS ANGELES, Sept. 21.—The firm of Commins & Kern, Inc., manufacturers of oil field equipment and specialties, with offices in the Commercial Exchange Building, Los Angeles, has recently changed the name to Commins & Hitt, Inc., and S. B. Hitt, who has had considerable experience in California and Wyoming oil fields, has entered the company.

TULSA, Sept. 22.—W. P. Jacobi, of the Milwaukee office of the Wadhams Oil Co. was in Tulsa this week on business. Mr. Jacobi for several years was Mid-Continent buyer for the Wadhams company with headquarters in Tulsa.

Allen Organizes Two Texas Companies

HOUSTON, Sept. 22.—The Great West Refining Co. and the Great West Pipeline Co., which will operate in the Howard-Glasscock county deep lime area of west Texas, have been organized by Reece S. Allen and associates with headquarters at Big Spring, Howard county.

Mr. Allen, formerly of Wichita Falls and later of Amarillo, is president of the two companies. William Fleming of Sherman, vice-president, is a principal in the producing firm known as the F. H. E. Oil Co. Virgil Hicks of Tulsa, treasurer, is an official of the Laurel Oil & Gas Co. Gordon West is secretary. Officers of the two companies are the same except that J. C. Straus will be acting treasurer of the Great West Refining Co. Directors also include A. G. Reed, Cosden & Co., Inc., and M. L. Smith.

The transportation company will operate a short pipe line from the Roberts-Settles deep lime area of Howard and Glasscock counties to the 6000-barrel refinery under construction along the Texas & Pacific railroad, east of Big Spring. The plant, which will be electrically equipped, is due to be in operation about Feb. 1.

Maxson Heads California Petroleum Exchange

LOS ANGELES, Sept. 21.—The California Petroleum Exchange, incorporated in 1918 and active for many years in serving independent refiners as a buying and selling agency, has opened new offices at 810 Hillstreet bldg., 815 S. Hill st.

H. H. Maxson is in charge as secretary-treasurer of the exchange He was for 12 years active head of the Independent Petroleum Marketers Association of California, resigning from that position because of ill health.

The California Petroleum Exchange, in addition to buying crude and disposing of surplus refined products, will carry selected oil lands for lease.

LOS ANGELES, Sept. 21.—Effective Sept. 1, Whealton & Townsend, Inc., dealers in oil well production machinery and specialties, removed offices from the Higgins Building to suite 694 Subway Terminal building, Los Angeles. They handle the distribution of Chicago Pneumatic Tool Co. products and it was necessary to secure larger quarters.

R. OTIS McCLINTOCK

Oil Man New President Of Tulsa Bank

TULSA, Sept. 22.—R. Otis McClintock, vice-president of the Independent Oil & Gas Co., was elected president of the First National Bank, Tulsa, on Sept. 20. At the same time Grant R. McCullough, associated with the bank for 20 years, retired as chairman of the board, and R. P. Brewer was elected to the chairmanship. Mr. Brewer had been president.

Mr. McClintock has lived in Tulsa since he was 16 years old. His first work in the oil industry was at Glenpool with the Gypsy Oil Co., in 1909. He was made vice-president of the Gypsy in 1916 and held that position until April, 1925, when he became associated with Waite Phillips in the formation of the Philmack company, which was quite active in the Seminole district. The Philmack company was consolidated with the Independent in December, 1927, and Mr. McClintock was elected a vice-president.

The First National is one of the outstanding oil country banks. On its directorate are the following well known oil men: A. A. Beard, J. I. Cromwell, John B. Foster, James A. Kennedy, W. L. Kistler, R. Otis McClintock, R. F. McMahon, D. W. Moffitt, Clyde H. Pape, Waite Phillips, R. B. Pringle, Robert C. Sharpe, W. G. Skelly, T. B. Slick and George W. Snedden.

Ross Heater & Mfg. Co., Inc., Buffalo, N. Y., manufacturer of heat exchangers, condensers, hot water heaters, etc., has opened offices in Philadelphia which will be under the direction of J. W. Spencer, Jr. Mr. Spencer was formerly in the company's New York offices.

Franchot, Pioneer Producer Dies

(By Telegraph)

TULSA, Sept. 24.—Douglas W. Franchot, pioneer Oklahoma oil producer and builder of the first natural gasoline plant in this state died at Muncy, Pa., Sunday, after an illness of three years. He was 48 years old.

Funeral services were to be held Sept. 24, at St. James Church, Muncy, with burial the following day at Morris, N. Y.

In 1904, a year after his graduation from Yale, Mr. Franchot came to Oklahoma to enter the producing business. The first gasoline plant in the state built by his company in 1911 is still in operation in the Kiefer district. D. W. Franchot & Co. now has two other gasoline plants as well as producing properties.

Mr. Franchot was an ardent sportsman from his university days, when he made a number of records as a runner. He was active as an officer in the Tulsa Gun club and interested in the Racquet and Gun clubs of Philadelphia. He organized the University club at Tulsa and was a member of the Yale club at New York.

Members of the University club of Tulsa recently honored him by hanging his portrait in the club lounge. The club had the picture painted by a prominent New York artist.

Mr. Franchot married Miss Frances Lippincott of Philadelphia in 1914. He is survived by his wife, four children, Nicholas, Constance, Douglas, Jr., and Diane. His parents, Mr. and Mrs. N. V. V. Franchot of Olean, N. Y., three sisters, Mrs. F. A. Godley of Rye, N. Y., Mrs. Edgar Munson of Williamsport, Pa., and Mrs. Janet Hickok of Goshen, N. Y., and one brother, C. P. Franchot of New York.

Just a short time before his death Mr. Franchot appeared to be in improved health and notified his company offices here that he would return to active management of the company this fall. He has been undergoing treatment at eastern and Canadian hospitals since January, 1927.

LOS ANGELES, Sept. 22.—Walter Edgar has resigned his position as manager of the California branch of the Smith Separator Company and effective Sept. 1 became connected with the Los Angeles office of the Dearborn Chemical Co. This company has offices at 807-815 Mateo street, Los Angeles.

LOS ANGELES, Sept. 22.—Gene McIntyre, formerly connected with Smith Separator Co., in the Texas division, is now in charge of the California office of the same company, having succeeded Walter Edgar, resigned.

Review of Late Production News

AGAIN of 15,800 barrels in daily average production in St. Louis pool, and a decrease of 8850 barrels in Seminole area, were most important changes in U. S. daily average production week ended Sept. 22 when output reached 2,508,850 barrels. This is a gain of 3950 barrels over previous week, according to American Petroleum Institute.

Crude oil imports, which had decreased 122,143 barrels the previous week, decreased 3429 barrels week ended Sept. 22, to 183,714 barrels.

Total new crude supply was 2,692,564 barrels week ended Sept. 22, or 521 barrels more than previous week.

Pecos county production fell off 3700 barrels, Long Beach 4000 barrels and Santa Fe Springs 3000 barrels.

Salt Creek increased 4200 barrels, Winkler county 4000 barrels and Ventura avenue 3000 barrels on daily average.

Oklahoma-Kansas

FOR the second week since Oklahoma's new form of proration, state wide in scope, was declared to be in effect, the production far exceeded the allowed amount of 700,000 barrels daily. Considerable difficulty is being experienced by the umpire and his staff in establishing correctly the potential figure of leases in the Little River and St. Louis pools because of new wells coming in.

Daily average figures for the week ended Sept. 22 show that output of the state was about 31,000 barrels more than the total allowed.

By the shutting in of the new Sinclair Oil & Gas Co. Wilcox well in the Allen field, in the extreme southern edge of Seminole county, Okla. the threat of an immediate drilling campaign in this area has been withdrawn.

Eight locations have been made in the as yet unnamed field in Twp. 7N-7E, Seminole county, Okla. The discovery well here was completed last November. When opened recently by its owners, the Mid-Continent Oil & Gas Co., the well started producing at the rate of about 1000 barrels per day from the Wilcox sand from 4443-4444. Part of the Allen field of southern Seminole, Hughes, and Pontotoc counties, Okla. This field has been producing about 20,000 barrels per day from the Cromwell sand for some time. It is the Wilcox discovery of the Sinclair Oil & Gas Co., along the northwest edge of the field that has brought the possibilities of this being a major field to the attention of the Mid-Continent.

California

ATTENTION at Santa Fe Springs the past week was largely centered in the efforts being made to control a burning well in the midst of the townlot area. More than 40 producing wells had to be shut in and 34 drilling wells are idle. A tunnel is being run to the well in an effort to divert the flow of oil and gas, and the supreme effort is expected early in the week. Two drilling wells found the first stringers of oil sand just above the new deep zone at around 5700 feet, and one well is cemented a string of pipe at 5690 feet.

At Long Beach only six new wells were placed on production and they averaged less than 600 barrels to the well, bringing about a decline in the field as some of the old producers are declining.

Texas, New Mexico, Louisiana

WELLS north and south of the main Winkler county, Texas, producing area are being watched for their future bearing on salt basin development. A south offset to the Leck well discovery in sec. 3, block 74, nine miles north of earlier Winkler production, cored oil shows in lime and anhydrite when drilled to 2720-2728 feet by the Empire Gas & Fuel Co. Top of the lime in the Leck well, now operated by Atlantic Oil Producing Co., which purchased it from Gibson & Johnson, was 2871 feet.

A west offset of Texas Pacific Coal & Oil Co., recently cored oil shows but failed to make a commercial well. South of Winkler production five miles, in sec. 50, block F, the O'Brien discovery of Sid Richardson and others made 10 barrels an hour at 2948 feet but was good only for four barrels an hour when deepened to 2954 feet.

The well increased its flow Sept. 24 to 230 barrels in 12 hours and is making 6,000,000 feet of gas daily.

Allowable production of Winkler county will be reduced to 150,000 barrels daily, Oct. 1, under order of the Railroad Commission of Texas, acting favorably on recommendations of the committee of operators.

In Lea county, New Mexico, The Texas Production Co. got a hole full of sulfur water in its No. 1 Compton test at 4355-4385 feet and probably will plug at total depth of 4385 feet.

The most important individual well completion recently in Gulf Coastal Texas was the No. 2 Ritter of the J. S. Abercrombie Co., and Dan J. Harrison, on the Pierce Junction salt dome. It made maximum daily production of 4100 barrels at 4260 feet.

In Louisiana, the Gulf Refining Co. finished No. 10 Lutcher-Moore, on Stark's dome, Calcasieu parish, for 1700 barrels daily at 4250 feet.

Wyoming, Montana

PRODUCERS & REFINERS CORP.'S fishing job on Muskrat structure in Fremont county was finished by the gasser itself; it blew the three strings of tools in the hole up through the derrick. The test is producing about 8,000,000 cubic feet of gas, and it is expected that deeper drilling will result in the discovery of oil.

Texas Production Co. is hauling its crude from the Alkali Butte well, west of the Muskrat test, to the railroad. The test is standing at 4000 feet or thereabouts, and is producing about 500 barrels of high grade crude per day.

Center of interest in the Montana fields is Pondera Dome where there are 11 wells drilling, 11 rigging up, two spudding, and one fishing. Production from the field is more than 1000 barrels per day and commands a high price. Montana posted field price has never been cut.

New Wilcox Pool in Allen Field Held Under Restraint by Discoverer

By John Power
N. P. N. STAFF WRITER

TULSA, Sept. 22

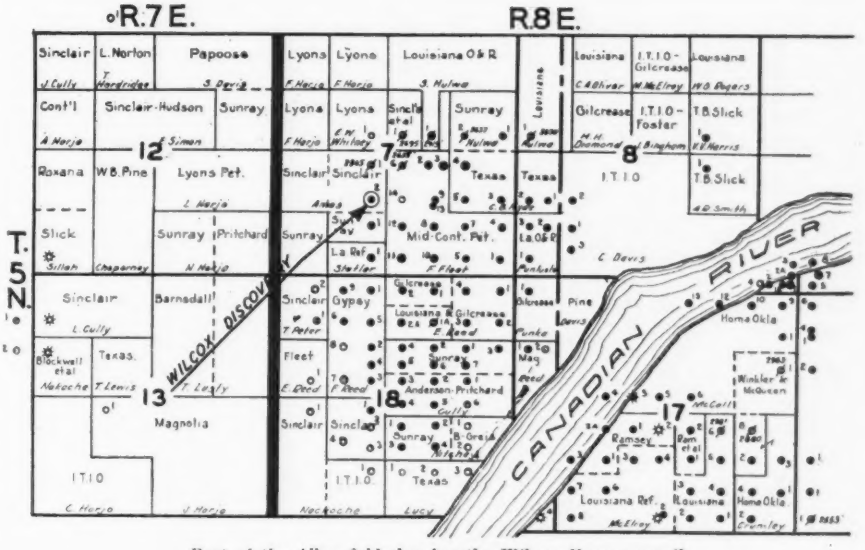
DISCOVERY of production in the Wilcox sand on the northwest edge of the Allen pool of southern Seminole county, Okla., brings that area into the charmed circle of potentially threatening pools. It is a threat of future rather than present possibilities, however, for the Sinclair Oil & Gas Co., driller of the discovery well, has shut it in to 50 barrels per day, which rate of production will be followed for some time. No plans have been announced which would indicate the early development of this new area in the deeper and more prolific pay.

The well, the Sinclair No. 2 Amos B, in the SE NE SW of 7-5N-8E, topped the Wilcox at 4158. After being drilled two feet into the sand the well started flowing at the rate of 35 barrels an hour. Within a few hours the well was pinched in, though no decrease had been noted in the rate of flow.

The well is located on the north flank of the Cromwell sand structure which has been producing in this district for some time. Structurally, the Sinclair well is 481 feet higher on the Wilcox sand than the dry hole of T. B. Slick, Inc., No. 1 Epperly, in the NW NE NW of 32-6N-8E, which had water in the Wilcox at 4552-4555. On the Viola lime, the Sinclair producer is 751 feet higher than the test the Homaokla Oil Co. is drilling in the NW SW NE of 33-5N-8E. Of course, it is possible that the Viola lime may thicken up enough to change the status of the wells on the Wilcox sand, but these two wells, one north and one south of the producer give some indication of the ridge from which the Wilcox oil is coming.

Another well is drilling to the Wilcox on the northeastern edge of the Cromwell sand producing area. The No. 4 Milner of Westheimer & Daube, in the SE of 8-5N-8E, a mile and a half east of the Sinclair well, is rapidly approaching the Wilcox sand. This test found the Hunton at 3916 and the Sylvan shale at 3943. Last reports from the field stated that the 5-inch was being underreamed at 3995 feet. Should this test make a well in the Wilcox sand it will open up a considerable stretch of territory for deeper drilling.

On Nov. 7, 1927 the Mid-Continent Oil & Gas Co. completed its No. 1 Smith, in the NW NE of 5-7N-7E for 60 barrels an hour in the Wilcox sand at 4443 to 4444. Since that date the well has been pinched in to a nominal production. The recent decision of the operators in the district to drill up some short term leases in the unexplored territory around the Mid-Continent well has brought this well back into the limelight.



Part of the Allen field showing the Wilcox discovery well

On Sept. 19, the well was opened up. The first hour's production was 120 barrels, the second it was 10 barrels, the third hour, five barrels, the fourth hour, nothing, the fifth hour, 15 barrels, the sixth hour, 95 barrels, the seventh hour, nothing, the eighth hour, 10 barrels, the ninth and tenth hours, nothing, and the eleventh hour, 100 barrels, a total of 355 barrels for the 11 hours.

Since then the well has averaged from 900 to 1000 barrels daily, this morning's gage being 965 barrels. The well has not been drilled deeper, only one foot of sand being penetrated so far.

Since the completion of the Mid-Continent well, there have been two wells drilled in the vicinity of the producer, both of which have been strippers. The Sands Petroleum Co. has a well doing about 150 barrels a day on the pump in the SW NW SE of Sec. 4, and the Magnolia Petroleum Co. has another well in an upper sand, good for about 50 barrels per day in the SE SE of 31-8N-7E. So far, about eight locations have been made, six of which are offsets to either the Mid-Continent or Sands wells.

Application of air to nearly all wells, and the completion of one more Wilcox producer, gave the Wilcox sand area of the St. Louis pool a boost in production for the week. The Magnolia Petroleum Co. No. 1 Fyke in Sec. 20-7-5, and the Mid-Continent No. 1 Guinn, in the same section, are the only wells not on air/gas lift. The former is flowing naturally and the latter is pinched in somewhat. though making its production naturally. A comparative statement of production for Sept. 20 and Sept. 13 follows.

Company	Well No.	Prod. Sept. 20	Prod. Sept. 13
T. B. Slick	1—Hembree	6,460	7,315
T. B. Slick	2—Hembree	6,205	5,185
T. B. Slick	3—Hembree	7,177	5,855
T. B. Slick	4—Hembree	off	off
T. B. Slick	1—Youts	4,412	553
Independent O & G	1—Youts	9,100	10,905
Independent O & G	2—Youts	6,270	7,995
Independent O & G	3—Youts	4,045	2,725
Independent O & G	4—Youts	8,115	2,795
Independent O & G	5—Youts	5,055	6,225
Gypsy Oil Co.	1—Stahl	5,135	5,847
Gypsy Oil Co.	2—Stahl	5,827	5,583
Magnolia Pet. Co.	1—Hembree	2,511	1,019
Magnolia Pet Co.	2—Hembree	7,731	5,856
Magnolia Pet. Co.	4—Hembree	1,406	.....
Phillips Pet. Co.	2—Stahl	7,287	7,020
Mid-Continent	1—Guinn	4,130†	4,495
		90,866	79,373

†Pinched.

The new producer added to the list during the week was the Magnolia Petroleum Co. No. 4 Hembree, in the SW SE of 19-7N-5E. It made a light well after topping the Wilcox at 4150 and drilling to 4186. Initial production of the well amounted to

but 486 barrels and the introduction of the air lift raised production to but a little better than 1400 barrels.

There are several wells drilling in close proximity to the Wilcox sand producers which should be in before long. The Magnolia Petroleum Co. has three wells in the Simpson which are not showing enough to justify stopping in that formation. The Magnolia No. 2 H. E. Youts, in the SW of 20-7-5 topped the Simpson at 4040, and has a hole full of oil at a total depth of 4120. The same company No. 1 H. E. Youts, in the NW SW of the same section flowed 91 barrels after drilling the Simpson from 4125 to 4158 feet.

The No. 5 well, in the SE SW SW, same section, has the top of the Sylvan shale at 3875. The Independent Oil & Gas Co. also has a couple near completion. That company's No. 6 Youts, in the SE of 19-7-5, had the top of the Simpson at 3965, getting 3800 feet of oil in the hole after drilling to 4058. The No. 7 well, in the SE of the same section, is cementing 8-inch casing at 3860, after topping the Viola lime at 3830.

Throughout the Seminole area as a whole there are 164 drilling operations, of which 139 are actual drilling wells. Of this number, 81 are below 3700 feet, while the remainder, 58, have not yet reached this depth. The Little River field continues to lead in the number of operations, with 112 to its credit, of which 101 are drilling. Out of this 101, 64 wells are below 3700 feet, and 37 wells are at shallower depths. A total of 248 producing wells in the field made 122,459 barrels for the 24 hours ending 7 a. m. Sept. 22.

Kansas added nothing of much interest to Mid-Continent oil news during the week. The Mid-Kansas Oil & Gas Co. No. 1 Larson, in the NE SW of 31-18S-2W, in McPherson county, the first producer in the county, is continuing to hold up well. The well, which was completed on June 27, last, is now making about 300 barrels of oil and 25 barrels of water.

To date, little activity has been started around the well of the Minnehoma Oil & Gas Co. in western Elk county. This well, which was completed for about 1000 barrels did not hold up long. Present production, coming from the sand at 1918-32, amounts to about 115 barrels. Two drilling wells a half mile north of the producer, are expected to be completed before long. There are no other drilling wells in the vicinity of the well, which is in the NW SW of 3-31S-8E.

Skelly Oil Co. furnished the most interesting development of the week in the Panhandle when it shot its No. 3 Armstrong-Byrd, in the NW of the J. W. Proctor survey, of Moore county. Prior to being shot with 80 quarts in the sand from 3178 to 3194, the well was making 30 barrels an hour. After the shot production reached a peak of 76 barrels an hour, which soon declined to about 50 barrels per hour. Production figures for the week for the Panhandle showed little change from the week before. A total of 1459 wells averaged 62,187 barrels per day for the week, an increase of one well and 224 barrels. The new well is in Carson county, being the Ryan Petroleum Co. No. 1, in the SE NW NE of section 111, Block 4. Initial production on the swab amounted to 219 barrels for the first 24 hours after an 80 quart shot from 3053 to 3105.

Pressure Declines Cut Shut In Potentials of Venezuela

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Sept. 20

DROPS in reservoir pressures of Lake Maracaibo wells have cut estimates of Venezuela's shut in potential production from 250,000 barrels daily to less than 80,000 barrels daily.

Confirmation of previously circulated reports to that effect come from Venezuela sources, which credit the Ambrosio and Mene Grande fields with most of the present shut in potential.

A total of 40,000 barrels additional exploitable production daily is credited to the Ambrosio field; 25,000 barrels daily to Mene Grande; 2500 barrels to La Paz; and 1500 barrels to Concepcion.

There is virtually no shut in production at Lagunillas, although mail advices from Maracaibo indicate the Lago Petroleum Co. had 11 wells there temporarily waiting on connections before being exploited.

On the basis of specific estimates for the four fields first mentioned, totaling 69,000 barrels daily, it is believed inclusion of the 11 Lago wells would bring the lake region's entire shut in potential to a level short of 80,000 barrels.

Exploited production of Venezuela fields this year has ranged between 225,000 and 275,000 barrels daily.

Lenticular sand reservoirs in shale beds found at completion depths in the lake front producing areas are responsible for the pressure declines noted in Venezuela wells.

The sand lenses are more or less disconnected from each other, so that the drilling of more wells is necessary to maintain production when pressures drop off. Reservoir pressures have declined as much as from 1300 pounds to 500 pounds to the square inch in short producing periods.

Wells one or two locations away may be drilled-in at pressures generally comparable to the maximums of earlier completions; but they, in turn, also decline quickly.

When an operating company's crude requirements call for maintaining a specified quantity of production from a given area it is necessary, therefore, to carry forward a sustained drilling campaign.

The three operating interests controlling the competitively drilled area along the eastern lake front are reliably reported shipping additional equipment to the Maracaibo region for use in proposed new operations.

In exploited areas of the eastern Maracaibo lake front, the Venezuelan Gulf Oil Co., subsidiary of the Gulf Oil Corp., operates a kilometer-wide strip (a kilometer is five-eighths of a mile) off-shore from land properties belonging principally to companies of the Royal Dutch-Shell group.

Drilling rights to the lake bed, out from the Gulf properties, are under control of the Lago Petroleum Corp., subsidiary of the Pan American Petroleum & Transport Co., which in turn is stock-controlled by Standard Oil Co. of Indiana.

Together, the properties call for competitive drilling approximately a mile wide whenever, and wherever, production is developed by either of the three companies.

Production along the lake front is so far confined to an area about 30 miles long, from the vicinity of El Mene, on the north, to a point near Lagunillas, on the south. Not all the lake front area between these two points has been found productive, but neither has it been adequately tested throughout the length mentioned.

It is the lake front area solely that engages the attention of petroleum analysts who have been fearful of sustained flush production in Venezuela disrupting American markets for years into the future.

Although it cannot be said with certainty that the peak of 1928-1929 production has been reached in the Maracaibo lake region, the worst fears of petroleum analysts appear to have been dissipated by reduction of estimated shut in potentials through declines in the reservoir pressures of wells.

An element of cheer is also found in the controlled character of properties away from the lake front. Virtually all these concessions are in large blocks, not subject to competitive development. Therefore, once the lake front region has been drilled up, the petroleum reserves of Venezuela—as now known—may be exploited only to the extent that market demand may require.

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A Texaco Tank Truck equipped with six Wheaton Type A Faucets. Here is also shown a larger view of this faucet.

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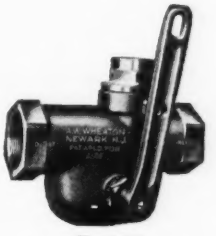
Sufficient praise indeed!

Other Wheaton Products used by The Texas Company include Loading Valves, Swing Joints and Anti-Freeze Valves.

Anti-Freeze Valve

Type 24 Tank Truck Faucet



Type 26 Loading Valve

Double Swing Joint

Type 25 Loading Valve

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Retired S. O. California Vice-President Dies

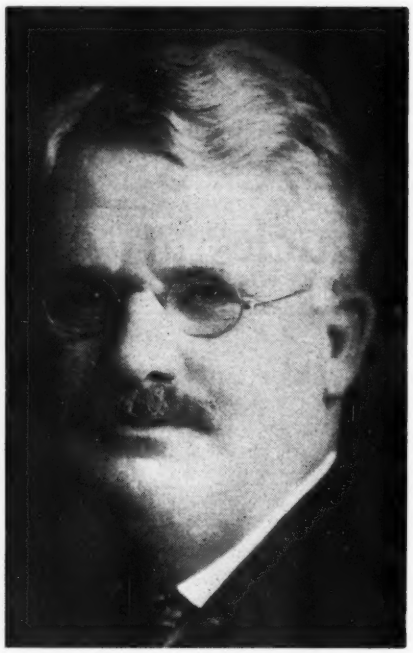
SAN FRANCISCO, Sept. 25

FRED HENRY HILLMAN, retired vice president of the Standard Oil Co. of California, died Sept. 8, at Dante Sanitarium, San Francisco, after an illness of several weeks. He was 66 years of age. The direct cause of his death was arterio sclerosis.

Mr. Hillman was a national figure in the petroleum industry. Throughout his business life he was engaged in the production of crude oil. He produced more oil than any other man in California. For many years he was a director of the American Petroleum Institute.

He spent his entire life in the industry, starting in 1879 as a messenger boy, at the age of 17, with the United Pipe Lines at Bradford, Pa. His long career came to an end when he retired March 29, 1927, after a service of 48 years.

Prior to coming to California in 1911 he was engaged in producing oil in Ohio, Illinois, and Indiana. Upon his arrival in California he became a director of the Standard Oil Co. On June 2, 1914, he was made a vice president.



F. H. HILLMAN
Retired vice-president of the Standard Oil Co. of California who died Sept. 8

When he first came here the crude oil production of the Standard Oil Co. amounted to only 8500 barrels a day. At the time of his retirement the total potential production of the company was 176,000 barrels a day. All this great development was under Mr. Hillman's immediate direction.

Mr. Hillman maintained residences at Berkeley and at Whittier. The funeral was held in Whittier Sept. 10.

Mr. Hillman is survived by his wife, Mrs. Fannie M. Hillman, six children, Judson M. Hillman, Los Angeles; Lorin L. Hillman, Los Angeles; William F. Hillman, San Francisco; Mrs. H. R. Longaker, Berkeley; Mrs. A. S. Palmer, Palo Alto; Mrs. C. H. Wines, Los Angeles; two sisters, Mrs. C. M. Merrill, Los Angeles, and Mrs. L. D. Langmade, North Baltimore, Ohio; and a brother, Harry H. Hillman of Los Angeles.

All Humble Employees Get Six-Day Work Week

(By Telegraph)

HOUSTON, Sept. 24.—Humble Oil & Refining Co. announces inauguration Oct. 1 of the 6-day working week for all regular employees and also for casuals after a specified period of service without reduction in present earnings.

Heretofore most departments of the Humble Oil & Refining Co. and the subsidiary Humble Pipeline Co. have been operated on a basis giving one day's rest in seven to employees. The present announcement brings under operation of this policy the entire producing department, the natural gasoline department and pipeline employees.

New York Gets Gasser At 4010 Feet

BOLIVAR, N. Y., Sept. 24.—What is claimed to be the deepest well in western New York is the discovery of the Belmont Quadrangle Drilling Corp., on the Gilbert farm, sec. 35, township Wirt, Allegany county. On Sept. 15 gas was struck at 4010 feet. Since then the well has been flowing wild, making 3,280,000 cubic feet of gas each 24 hours, according to J. F. Care, president of Homestead Oil Co., Inc., Bolivar.

It is said to be spraying 25 barrels of 52 gravity oil daily from the Flint sand.

Field Course in Cementing

TULSA, Sept. 22.—Under the auspices of the Mid-Continent division, American Petroleum Institute division of development and production engineering, a course of instruction in the use of cement will be given Oct. 8 and 9 in the Earlsboro field, Seminole county. A representative of the Portland Cement Association will conduct the course. Those who attend will meet at 7:30 o'clock each evening of the two days at the school house on the Barnsdall Oil Co.'s Sullivan lease.

Field problems will be discussed and instruction will be given in mixing cement with materials that are available in the field. An analysis of concrete that has failed in the field will be made. Similar courses held in Texas and Oklahoma in the past year have been highly successful, company superintendents say.

LOS ANGELES, Sept. 22.—Dr. George M. Lees, geologist with the Anglo-Persian Oil Co., spent more than a week recently in California, visiting the oil fields of the state. Sept. 19 he visited 15 fields in the Los Angeles Basin, getting a bird's-eye view of 4327 producing wells, producing at the rate of 459,000 barrels a day. Before coming to California he toured the old Eastern fields and later the Mid-Continent.

TULSA, Sept. 22.—M. E. Griffith, secretary and treasurer of the Western Petroleum Refiners Association, is confined to a Tulsa hospital where he is recuperating from a minor operation.

Dutch Give Equal Rights To Americans

WASHINGTON, Sept. 22.—The State Department has announced the reaching of an understanding with the Netherlands government, whereby the citizens of each will have reciprocal rights in territory of the other for the development of oil lands.

The dispute arose in 1921, when one of the Standard companies asked for the privilege of developing not more than half of the Djambi field, in southern Sumatra, Dutch East Indies, in partnership with the Dutch government.

The Standard pointed out that the Royal Dutch, made up of Dutch and English capital, had been given such a concession while it had been denied to the Standard.

The Dutch government now assures the United States that its laws and policy are such as to permit Americans to participate in the development of oil resources in the Dutch East Indies. Whether the settlement will amount to anything in a practical way the State Department does not know.

TULSA—Carl W. Clarke, chief geologist of the Darby Petroleum Co., was killed Sept. 13 when he fell from a fifth story window of an Oklahoma City hotel. A coroner's verdict was accidental death. Relatives said Clarke often walked in his sleep. He was 31 years old and had been with the Darby company for about six years. He is survived by his widow and two children.

Winkler County, Tex. Gains a Little

HOUSTON, Sept. 22.—Total potential production of the Winkler county territory, in West Texas, is figured for prorating purposes at 2,505,902 barrels daily in the period of Sept. 16-30. This total represents an increase of 211,231 barrels potential over the figure used in the preceding semi-monthly period.

The total number of productive 40-acre units in the field was announced by the umpire as 161. Allowable unit production for the new period is 543 barrels, a decrease of 33 barrels as compared with the preceding period.

Production of the various operators is figured 50 per cent on proved acreage under the unit system and 50 per cent for total potential production.

Deep Lime Area in Texas Rates 37,000 Barrels

HOUSTON, Sept. 24. — Nineteen wells gaged for prorating purposes in the deep lime area of Howard and Glasscock counties, Texas, were found to have daily potential production totalling 37,205 barrels.

Fourteen are in the 3000-foot pay horizon, which is good for 34,671 barrels potential. Five are in the 2500-foot pay good for 2534 barrels for the group.

The three largest wells gaged were No. 2 Dora Roberts, of the Cosden partnership with Owens & Sloan, which tested 6981 barrels in 24 hours. No. 2 Dora Roberts, of Schermerhorn Oil Co., which made 4457 barrels; and Magnolia Petroleum Co.'s Dora Roberts discovery, which flowed 4416 barrels. Wells with pipeline outlets are being exploited at 50 per cent of their potential production, as measured under full 24-hour gages.

Association Committee May Draft New Conservation Laws

TULSA, Sept. 22

THROUGH a committee appointed by the executive committee of the Mid-Continent Oil & Gas Association, Oklahoma-Kansas division, a study has been started of the conservation law in the two states. The purpose of this is to draft, for submission to the legislatures of the two states, suggested laws which would strengthen existing machinery, likewise supplying to it new parts.

While the study has barely been started and ample time remains for discussion before the Oklahoma legislature meets early in the coming year —the start doubtless will be made in Oklahoma—it is indicated that one of the major phases of the conservation subject to be studied will be that of gas energy.

Recently the state corporation commission of the state, in a proration order, took an advanced stand when it declared that the gas energy in a pool is the property of all producers in the pool and is not divisible into the entities represented by the several leases.

Attempt at legislation along this line will be breaking more new ground. Existing conservation laws on gas production in all states that have adopted them look at gas only as a commodity and not as the energy which moves the oil through the sand into wells.

The Mid-Continent association committee which is undertaking the study consists of James A. Veasey, general counsel, Carter Oil Co.; Wallace C. Franklin, vice-president, Tidal Oil Co.; J. C. Denton, vice-president, Mid-Continent Petroleum Corp.; John H. Brennan, chief counsel, Barnsdall companies; D. A. Richardson, general counsel, Marland Oil Co.; John H. Kane, vice-president, Phillips Petroleum Co.; Wirt Franklin, president Wirt Franklin Corp.; W. P. Z. German, chief counsel, Skelly Oil Co. and T. J. Flannelly, chief counsel, Prairie Oil & Gas Co.

Probably several weeks will pass before the committee resolves its studies into definite proposals. One thing that will hold them back will be the desire to wait until the committee of the mineral law section of the American Bar Association which is also studying the existing laws on oil and gas shall have held its meeting. That meeting will be in Wichita, Kans., Nov. 13. It is the desire of oil company attorneys that the two committees work as closely together as possible.

There is fairly general sentiment among oil operators and attorneys that state legislation, if proposed, should be of the permissive type—that as great a degree of self-government should be left to the oil industry as is possible and at the same time there should be embodied in statute some of the ideas acquired in the past two years, during which time the principle of voluntary cooperation has been given its greatest trial. The end sought is a minimum of regulation and the widest possible scope of industrial control.

Enlarges Manufacturing Plant

LOS ANGELES, Sept. 21.—Byron Jackson Pump Co. is enlarging its plant facilities at 2150 East Slauson avenue, Los Angeles. Improvements under way include remodeling and rearranging of the existing buildings and the construction of a two story office building. The main shop building is being enlarged to 110 by 280 feet. The office building will be 36 by 128 feet of frame and stucco. When completed in November, the plant will have a total floor area of about 67,000 square feet.

Seminole District Production by Companies and Leases, September 19 and September 12, 1928

LITTLE RIVER

Company	Farm	S.T.R.	Sept. 19th Wells	Sept. 19th Prod.	Sept. 12th Wells	Sept. 12th Prod.
Amerada	Nitey	2- 7-6	3	1,180	3	1,280
Amerada-Wilcox	Fore	35- 8-6	2	305	2	295
Total Amerada.			5	1,485	5	1,575
Barnsdall	Cotcha	23- 7-6	1	640	1	1,555
Barnsdall	Hotulke	22- 7-6	2	795	2	997
Barnsdall	Walker	4- 7-6	1	514	0	0
Total Barnsdall.			4	1,949	3	2,532
Blackwell	Baker	11- 7-6	3	2,265	3	1,570
Blackwell	Nitey	35- 8-6	6	1,580	6	1,405
Blackwell	Talley	14- 7-6	2	875	2	730
Total Blackwell.			11	4,720	11	3,705
Carter	Cotcha-M	23- 7-6	1	175	1	205
Carter	Cudjo	23- 7-6	1	120	1	160
Carter	Fish	36- 8-6	6	620	6	690
Carter	Harjo-C	11- 7-6	1	5,620	1	7,737
Carter	Harjo-M	13- 7-6	2	1,213	2	1,322
Carter	Jackson	11- 7-6	3	2,450	3	3,115
Carter	Larney	24- 7-6	2	2,155	2	3,135
Carter	Lena	10- 7-6	1	1,867	1	2,120
Carter	Moore	11- 7-6	1	1,155	1	1,295
Carter	Tewee	14- 7-6	4	4,320	4	6,570
Carter	Thomas	11- 7-6	2	1,060	1	260
Carter	Wilson	12- 7-6	1	1,190	1	1,502
Total Carter....			25	21,945	24	28,111
Champlin	Tewee	14- 7-6	2	2,426	2	2,876
Continental	Cosar L	36- 8-6	7	1,605	7	1,715
Continental	Cosar M	25- 8-6	1	320	1	430
Cont. et al	Milsey	11- 7-7	1	1,320	1	1,620
Total Continental			9	3,245	9	3,765
Empire	Coker	13- 7-6	1	555	1	642
Gypsy	Brown	33- 8-6	1	695	1	1,300
Gypsy	Brown C	33- 8-6	2	1,582	1	197
Gypsy	Campbell	33- 7-6	2	82	2	85
Gypsy	Conard	22- 7-6	2	1,019	1	732
Gypsy	Cosar M	25- 8-6	1	0	1	0
Gypsy	Cosar W	36- 8-6	2	370	2	37
Gypsy	Cotcha	23- 7-6	3	1,527	2	1,557
Gypsy	Denmark	11- 7-6	3	4,312	3	2,987

(Continued on Page 42)

Seminole District Production by Companies and Leases, September 19 and September 12, 1928

(Continued from Page 41)

Company	Farm	S.T.R.	Sept. 19th Wells	Sept. 19th Prod.	Sept. 12th Wells	Sept. 12th Prod.
Gypsy	Hulhoke	14- 7-6	8	4,985	7	6,045
Gypsy	Mungee	1- 7-6	1	22	1	25
Gypsy	Pottie	35- 8-6	4	800	4	790
Gypsy	Renton	11- 7-6	3	1,160	3	1,125
Total Gypsy			32	16,554	28	14,880
Independent	Davis R	13- 7-6	2	955	2	1,315
Indep.	Tewee	14- 7-6	4	1,967	3	2,492
Indep.	Harris	23- 7-6	5	1,747	3	1,430
Indep.-W. Eagle	Davis	3- 7-6	3	1,226	3	1,400
Indep.	Williams	15- 7-6	1	1,415	1	1,625
Total Independent			15	7,311	12	8,262
I. T. I. O.	Campbell	1- 7-6	1	232	1	221
I. T. I. O.	Dungan	35- 8-6	3	1,222	3	1,216
I. T. I. O.	House MA	1- 7-6	1	31	1	67
I. T. I. O.	House WE	1- 7-6	1	32	1	65
I. T. I. O.	House B	2- 7-6	4	1,184	4	1,178
I. T. I. O.	Hull	26- 8-6	3	1,307	3	1,340
I. T. I. O.	Jackson	1- 7-6	3	1,033	3	1,006
I. T. I. O.	McCulla	1- 7-6	3	635	3	619
I. T. I. O.	Nitey	1- 7-6	6	371	6	409
I. T. I. O.	Phoebe-A	36- 8-6	3	328	3	339
I. T. I. O.	Phoebe-B	36- 8-6	4	172	4	172
I. T. I. O.	Reed	1- 7-6	1	31	1	36
I. T. I. O.	Soketheche	1- 7-6	3	635	3	651
Total I. T. I. O.			36	7,213	36	7,320
Magnolia	Cruse	2- 7-6	4	966	4	1,134
Magnolia	Denby	11- 7-6	2	1,288	2	1,520
Magnolia	Dixon	31- 8-7	1	2	1	2
Magnolia	Harjo A	14- 7-6	2	1,465	2	1,625
Magnolia	Pottie	35- 8-6	4	584	4	584
Magnolia	Reed	22- 7-6	2	1,272	2	1,424
Total Magnolia			15	5,577	15	6,291
Mid-Continent	Brunner	11- 7-6	4	3,935	3	1,415
Mid-Cont.	Eleck	23- 7-6	1	35	1	460
Mid-Continent	Smith	5- 7-7	1	65	1	65
Mid-Cont.	Wadsworth	36- 8-6	7	475	7	490
Total Mid-Continent			13	4,510	12	2,430
W. B. Pine	Hoyesha	26- 8-6	4	1,577	4	1,962
Pine-Phillips	Pottie	35- 8-6	2	427	2	358
Total Pine			6	2,004	6	2,319
Prairie	Chicloat	25- 8-6	3	905	3	335
Prairie	Dungan	36- 8-6	1	0	1	25
Prairie	Gibson	14- 7-6	5	4,130	4	2,795
Prairie	Harris	14- 7-6	3	1,500	3	3,085
Prairie	House	2- 7-6	4	655	5	750
Prairie	Moppin	24- 7-6	1	890	0	0
Prairie	Talley	14- 7-6	2	1,845	2	2,000
Prairie Amer.	Sunny	14- 7-6	6	8,113	4	8,245
Total Prairie			25	18,038	21	17,235
Pure	Cotsha	14- 7-6	5	3,920	5	4,429
Pure	Harjo	11- 7-6	3	1,847	3	2,225
Total Pure			8	5,767	8	6,654
Reiter-Foster	Bunyard	14- 7-6	3	4,005	3	4,320
Roxana	Caesar	11- 7-6	1	117	1	143
Roxana	Hotulke	23- 7-6	3	1,769	2	2,033
Roxana	Johnson	13- 7-6	3	3,127	2	2,512
Total Roxana			7	5,013	5	4,688
Shaffer	Narcome	36- 8-6	2	222	2	330
Sinclair	Cosar	36- 8-6	3	1,400	3	1,600
Sinclair	Haney	12- 7-6	1	118	1	115
Sinclair	Tewee	14- 7-6	2	2,490	1	717
Total Sinclair			6	4,008	5	2,432
Skelly	Carl	14- 7-6	2	579	1	690
Slick	Reed	13- 7-6	1	1,465	0	0
Slick	Williams	15- 7-6	2	1,042	2	230
Snowden et al.	Tiger	13- 7-6	2	1,100	2	1,032
Superior	Soketheche	1- 7-6	1	10	1	10
Texas	Coker	1- 7-6	3	735	3	815
Texas	Janey	11- 7-6	2	1,530	2	2,190
Tex-Indep.	Hotulke	23- 7-6	2	2,075	2	1,985
Total Texas			7	4,340	7	4,900
Tidal	House	1- 7-6	3	477	3	530
Tidal	Johnson	1- 7-6	1	28	1	30
Total Tidal			4	404	4	580
Twin State	Lowe	25- 8-6	1	150	1	165
TOTAL LITTLE RIVER			246	125,839	226	128,045

EARLSBORO

Company	Farm	S.T.R.	Sept. 19th Wells	Sept. 19th Prod.	Sept. 12th Wells	Sept. 12th Prod.
Amerada	Anderson	15- 9-5	2	584	2	661
Amerada	Cowden	4- 9-5	7	1,140	7	1,275
Amerada	Rogers	3- 9-5	2	20	2	10
Total Amerada			11	1,744	11	1,946
Atlantic et al.	Foremen	18- 9-5	1	140	1	140
Barnsdall	Brown	10- 9-5	4	1,662	4	1,376
Barnsdall	F. Bruner	2- 9-5	3	652	3	681
Barnsdall	N. Bruner	10- 9-5	3	1,074	3	1,111
Barnsdall	Cudjo	14- 9-5	1	23	1	26
Barnsdall	D. Davis	11- 9-5	3	166	3	204
Barnsdall	J. Davis	11- 9-5	4	729	4	1,222
Barnsdall	M. Davis	11- 9-5	2	53	2	68
Barnsdall	Gibson	9- 9-5	8	2,002	8	1,937
Barnsdall	Hern	15- 9-5	1	1	1	1
Barnsdall	Ingram	1- 9-5	8	880	8	901
Barnsdall	Pack	10- 9-5	4	157	4	177
Barnsdall	Peter	10- 9-5	4	90	4	73
Barnsdall	Sango	1- 9-5	4	2,283	4	2,835
Barnsdall	Sebolka	15- 9-5	1	182	1	88
Barnsdall	H. Sullivan	11- 9-5	1	9	1	0
Barnsdall	Sull-Harjo	10- 9-5	2	29	2	38
Barnsdall	Watsutke	12- 9-5	4	869	4	1,124
Total Barnsdall			57	10,860	57	11,862
Burk-Greis	Wisner	6- 9-6	1	1,775	1	1,930
Carter	Davis	13- 9-5	2	210	2	260
Carter	James	6- 9-6	3	6,045	3	6,810
Carter	Sango	1- 9-5	3	55	3	40
Total Carter			8	6,310	8	7,110
Continental	Kays	2- 9-6	2	45	2	97
Continental	Spencer	12- 9-5	4	1,290	4	995
Total Continental			6	1,335	6	1,092
Empire	Barker	12- 9-5	1	72	1	85
Empire	Edmundson	3- 9-5	3	143	3	150
Total Empire			4	215	4	235
Gypsy	Bruner	10- 9-5	4	2,672	4	3,192
Gypsy	B. Carter	11- 9-5	8	2,815	8	3,197
Gypsy	Earl	16- 9-5	1	19	1	18
Gypsy	Hunick	5- 9-5	1	1,992	1	2,150
Gypsy	Noble	12- 9-5	4	1,602	4	1,430
Gypsy	Peter	10- 9-5	3	320	3	315
Gypsy	Sango	1- 9-5	11	7,267	11	9,292
Gypsy	State	16- 9-5	4	1,468	4	1,600
Total Gypsy			36	18,155	36	21,194
Independent	Bruner	10- 9-5	3	410	3	437
Independent	Sullivan	10- 9-5	1	25	1	25
Independent	Knapp	8- 9-5	3	1,700	3	1,664
Indep.-Margay	Gaines	11- 9-5	3	710	3	705
Total Independent			10	2,845	10	2,831
Magnolia	Bryant	9- 9-5	6	500	6	506
Magnolia	Cowden	4- 9-5	4	40	4	40
Magnolia	Dixon	12- 9-5	1	17	1	28
Magnolia	Edmundson	3- 9-5	3	30	3	28
Magnolia	Holmsley	11- 9-5	7	934	7	1,257
Magnolia	Hyde	13- 9-5	1	1,333	1	1,649
Magnolia	Ingram	10- 9-5	1	28	1	25
Magnolia	Lena	10- 9-5	3	55	3	55
Magnolia	Seay	12- 9-5	9	2,676	9	2,748
Magnolia	Simpson	10- 9-5	4	632	4	160
Magnolia	Sparks	11- 9-5	7	697	7	871
Magnolia	Sullivan	12- 9-5	3	79	3	84
Total Magnolia			49	7,019	49	7,451
Mid-Continent	McCumber	9- 9-5	7	90	7	90
Mid-Kans.	Anderson	14- 9-5	3	70	3	80
Phillips	Dunnaway	14- 9-5	1	30	1	25
Prairie	Baker	24- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	4	2,830	5	2,990
Prairie	C. Graham	3- 9-5	2	15	2	5
Prairie	O. Graham	10- 9-5	4	1,220	4	1,310
Prairie	Stidham	11- 9-5	12	2,045	12	2,395
Total Prairie			23	6,160	24	6,750
Roxana	Bayliss	17- 9-5	1	12	1	0
Roxana	Spencer	12- 9-5	2	102	2	97
Total Roxana			3	114	3	97
Shaffer	Clark	1- 9-5	3	420	3	500
Shaffer	McCoy	36-10-5	1	1,230	1	1,300
Total Shaffer			4	1,650	4	1,800
Sinclair	Foreman	18- 9-5	1	14	1	15
Sinclair	Hollins	12- 9-5	1	35	1	45
Sinclair	Sango	2- 9-5	4	3,010	4	3,460
Total Sinclair			6	3,059	6	3,520
Skelly	Mays	1- 9-5	2	4,224	2	4,140
Skelly	Shepard	6- 9-6	1	1,916	1	2,100
Skelly	Sherry	6- 9-5	2	2,902	2	2,203
Skelly	Spencer	12- 9-5	1	518	1	406
Total Skelly			6	9,560	6	8,849
Superior	Ingram	1- 9-5	2	1,085	2	1,061
Superior	Walker	2- 9-5	2	3,038	2	3,143
Total Superior			4	4,123	4	4,204
Texas	Anderson	2- 9-5	8	465	8	610
Texas	Brown	10- 9-5	8	345	8	247
Texas	Rogers	5- 9-5	4	2,300	4	2,440
Texas	Wilmott	10- 9-5	7	635	7	585
Total Texas			27	2,745	27	3,882
Tidal	Walker	35-10-5	1	1,855	1	2,050
Tidal	Watkins	9- 9-5	7	2,585	7	2,755
Total Tidal			8	4,445	8	4,805
Twin State	Barker	12- 9-5	3	53	2	59
Twin State	Hern	2- 9-5	4	275	4	305
Total Twin State			6	328	6	364

SUMMARY

TOTAL EARLSBORO	**283**	**85,091**	**284**	**91,658**
TOTAL BOWLEGS	**316**	**48,268**	**317**	**51,981**
TOTAL SEMINOLE	**290**	**44,238**	**290**	**47,812**
TOTAL SEARIGHT	**69**	**11,571**	**69**	**13,315**
LITTLE RIVER	**246**	**125,839**	**226**	**128,045**
GRAND TOTAL SEMINOLE AREA	**1,204**	**315,007**	**1,186**	**332,811**
Avg. Per Well			**262**	**280**

Completions in Texas, Week Ended September 22, 1928

NORTH TEXAS

Archer County

Company	Well Farm	Survey	Sec. and Blk.	Depth	Init. Prod.
Christie et al	7-Richardson	Anderson Blk-5		1360-1365	3
Gilliland	3-Neimeyer	TE&L Sec-2415		1387-1395	35
Gulf Prod	3-Hayter	TE&L Sec-2409		1400-1412	240
Kemrow	1-Campbell	DCSL Sec-1 League 3		551-560	10
King Royalty	4-Rogers	TE&L Sec-1600		1264-1273	15
Madden-Hunt	1-Richardson	Anderson Sec-1		1281-1293	54
Stumpf-Hines	3-Wallace	DCSL League-3 Blk-11		1001-1008	30
Stumpf-Hines	4-Wallace	DCSL League-3 Blk-11		1008-1012	40
Continental	1-Parrish	Hooper Sec-8		T.D. 1716	Dry
Kruger	1-Tuberville	McKinney Sec-176		T.D. 1525	Dry
Pandem	1-Gravey	Harris Blk-66		T.D. 1554	Dry
Shappell	1-Kemp et al.	KWVFL Blk-76		T.D. 1862	Dry

Clay County

Hamilton	1-Wade	Dailey Blk-12		T.D. 1028	Dry

Denton County

Lesh-McCall et al.	1-Yates	Hendrix		T.D. 2013	Dry

Wichita County

Hammon et al	1-Burnside	Sharp		T.D. 1852	Dry
Stumpf et al	1-Lockridge	Neatherly		T.D. 1877	Dry
Ten Brink	1-Wigley	Tap		T.D. 215	Dry
Underwood Drlg.	1-Pace	Scott Sec-118 Blk-9		T.D. 1861	Dry
Willis	1-Preston	Anderson		T.D. 1358	Dry
Bridwell et al	3-Waomac	GC&SF		1804-1808	32
Empire	5-Ancell	H&TC Sec-11 Blk 7		1727-1730	10
Hines et al	4-Waggoner	GC&SF		1386-1400	40
Magnolia	2-Pace	Scott Blk-118		1065-1071	10
Sheldon	7-Cohn	Waggoner Blk-327		1641-1652	40
Texas	5-Waggoner	George		1813-1817	15

Wilbarger County

Consolidated	9-Waggoner	H&TC Sec-5 Blk-5		1852-1871	185
Consolidated	1-Waggoner	Purnell		1892-1904	47
Cosden	23-Waggoner	H&TC Sec-31 Blk-4		2323-2339	190
Cosden	24-Waggoner	H&TC Sec-31 Blk-4		2288-2304	190
Grisham	1-Waggoner	H&TC Sec-50 Blk-4		1864-1898	60
Simms	4-Waggoner	H&TC Sec-4, Blk-5		1852-1871	116
Texas	357-Waggoner	H&TC Sec-33 Blk 4		2408-2415	160
Texas	11-Waggoner	H&TC Sec-24 Blk-4		2262-2388	450
Waggoner Farm	4-Waggoner	H&TC Sec 5 Blk-5		1853-1868	183
Baker et al	2-Waggoner	Butler		T.D. 1903	Dry
Fain-McGaha	1-Waggoner	SP Sec-1		T.D. 1947	Dry
Roxana	2-Millner	H&TC Sec-30 Blk-9		T.D. 2868	Dry
Waggoner	6-Waggoner	H&TC Sec-25 Blk-4		T.D. 2366	Dry

Young County

Stafford	1-Stewart	YCSL Blk-5		T.D. 490	Dry
Hamilton et al	1-Willard	TE&L Sec-227		T.D. 1017	Dry
Magnolia	1-Johnson	Sargent Blk-13		T.D. 865	Dry
Pennell et al	3-Johnson	Sargent		T.D. 530	Dry
Roxana	1-Haygood	TE&L Sec-1468		T.D. 808	Dry
Smith et al	1-Davis	GB&N Sec-4		T.D. 851	Dry
Stafford	3-Boone	BBB&C Sec-1		T.D. 554	Dry
Weekly Oil	1-Jordan	TE&L Sec-1466		T.D. 713	Dry
Johnston	1-Gravey	TE&L Sec-1858		T.D. 864	Dry
Seaboard	1-Ragland	Manning		T.D. 2191	Dry
Seaboard	1A-Ragland	Manning		T.D. 2262	Dry
Stovall	9-Stovall	Tobin Lot-28		T.D. 2640	Dry
Stovall	1-Stovall	Tobin Lot-28		T.D. 4350	Dry
Kleiner et al	22-Langston	TE&L Lot-1490		561-592	15
Kleiner et al	20-Langston	TE&L Lot-1490		571-600	50
Kleiner et al	21-Langston	TE&L Lot-1490		562-610	10
Riggs	12-McKinley	TE&L Lot-1489		548-581	551
Tidal	1-Garrett	TE&L Lot-1487		553-566	65
Paull	2-Eddleman Bros.	TE&L Lot-2692		2242-2248	15

NORTH EAST TEXAS

Anderson County

Humble	1-Holloway	Roberts		3733-3766	1900
Pure	1-Bruce	Lewis		T.D. 4000	Dry

Brown County

French	1-George	Gross		T.D. 1392	Dry
Mitcham et al	2-Keeler	Kenney		T.D. 1063	Dry
Uhl et al	1-Churchhill	Curbier		T.D. 1227	Dry
Williamson et al	4-Eddington	Mitchell		T.D. 1169	Dry
Brown County	2-McDonald	Hunt Blk-18		1472-1486	2M
Burris et al	7-Newton	Curlong		1181 1214	40
Charter	10-Boyler	T&NO Blk-43		1309-1334	75
Midland	9-Butler	Benson		1250-2175	60
Milham	4-Rosser	Cross		1301-3126	143
Riordan et al	1-Riordan	Jennings Blk-353		1179-1181	8
Young Bros. et al.	10-Teston	Curlong Blk-151		1181-1205	280

Callahan County

Mortimor et al	1-Jones	D&DA Sec-40		486-494	5
Mortimor et al	2-Jones	D&DA Sec-40		498-511	15
Tidal	2-Gililand	BBB&C Sec 147		T.D. 1055	Dry
Garner	1-Settle	CCSL Sec-74		T.D. 390	Dry

Cherokee County

Humble	1-Weinberg	Trimble Blk-15		T.D. 3174	Dry

Coleman County

Amerada	1-Holt	Fisk		T.D. 1612	Dry
Derby	1-Jennings	Lipscomb Blk-94		T.D. 2435	Dry
Simms	1-Brannon	Sprague		T.D. 1980	Dry
Taylor	1-Gay	Pendleton Sec-90 Blk-274		T.D. 1718	Dry
Link	1-Bowen	BBB&C Blk-25		T.D. 3005	Dry
Williams et al	1-Edmondson	Holt		T.D. 1702	Dry
Forrester et al	3-Davenport	Dunlavy		929-932	5

Comanche County

Company	Well Farm	Survey	Sec. and Blk.	Depth	Init. Prod.
Hoffer	1-Thompson	H&TC Lot 16 Blk-2		2680-2730	20&3M

Eastland County

Dale	11-Fox	McLennan Co. Schl. Sec-58		1624-1630	40
Goodwin et al	1-Parker	Van Norman Sec-16		3390-3432	1M OWD
Wylie-Harbin	1-Coon	H&TC Sec-27 Blk-2		1265-1282	15
Lewis et al	3-Johnson	H&TC Sec-11 Blk-4		1744-1748	4M
Panhandle	28-Hightower	Van Norman		1200-1205	5
Amerada	1-LaMance	H&TC Sec-29 Blk-1		T.D. 826	Dry
Clark et al	1-Gerdes	T&NO Sec-4		T.D. 1730	Dry
Hazlip et al	1-Webb	H&TC Sec 12 Blk-2		T.D. 1566	Dry
Lowe et al	1-Rider	ET Sec-39		T.D. 2999	Dry
Porter Dev	1-Earp	Head		T.D. 1523	Dry
Russell et al	1-Duncan	Bledsoe		T.D. 1733	Dry
Schimmel Prod	1-Brewer	Finley		T.D. 1560	Dry
Southwestern	1-Reagan	H&TC Sec-38 Blk-4		T.D. 3725	Dry

Erath County

Cowan-Spear	1-Conway	Espinoza		3273-3280	10M

Henderson County

Haynes	1-Tarkington	Patton		T.D. 3100	Dry

Jack County

Shaw	9-Culler	Culler		T.D. 2010	18

Limestone County

Hicks et al	1-Stroud	Varella		T.D. 2967	Dry
Mexia Dev. et al	1-Sweatt	Varella		T.D. 3588	Dry

Navarro County

Berne et al	1-Hamilton	Rahm		T.D. 3168	Dry

Shackleford County

Phillips	4-Books	BAL Sec-55		T.D. 100	Dry
Roeser et al	1-Cook	ET Sec-145		T.D. 1889	Dry
Tannehill	8-Mathews	ET Sec-58		T.D. 1410	Dry
Wentz	9-Reynolds	T&P Sec-13 Blk-11		1115-1141	22
Roeser-Pendleton	76-Cook	ET Sec-60		1161-1186	25
Roeser-Pendleton	75-Cook	ET Sec-60		1171-1186	40
Roeser-Pendleton	74-Cook	ET Sec-60		1160-1180	40
Roeser-Pendleton	8-Cook	ET Sec-61		1345-1376	175
Roeser-Pendleton	9-Cook	ET Sec-61		1322-1343	75
Roeser-Pendleton	11-Cook	ET Sec-61		1344-1361	75
Roeser-Pendleton	7-Cook	ET Sec-61		1345-1358	200
Roeser-Pendleton	21-Cook	ET Sec-60		1229-1243	140
Roeser-Pendleton	22-Cook	ET Sec-60		1194-1209	100
Roeser-Pendleton	23-Cook	ET Sec-60		1220-1238	150
Roeser-Pendleton	31-Cook	ET Sec-60		1162-1187	300

Taylor County

Doring et al	1-Homer	T&P Sec-23 Blk-19		T.D. 455	Dry
Roeser-Pendleton	1-Butram	T&P Sec-64 Blk-5		T.D. 3205	Dry

Throckmorton County

Tedley et al	1-Reynolds	Comanche Ind. Res. Sec-83		T.D. 1403	Dry
Stock et al	1-Cummings	Comanche Ind. Res. Sec-31		960-965	8

WEST TEXAS

Crane County

Simms-Atlantic	1-Univ.	Univ. Sec-45 Blk-30		2862-2977	190

Hale County

The Exploration	1-Goodman	D&SE Sec-1		T.D. 3800	Dry

Howard County

Ma-land et al	2-Settles	W&NW Sec-158 Blk-29		2480-2600	50
Hyer-Dunnigan	1-Clay	W&NW Sec-126 Blk-29		1774-1790	135

Pecos County

Gulf Prod	17-Yates	Runnels Co. Schl.		1360-1500	60 (1 Hr.
Gulf Prod	11-Smith	GC&SF		1653-1870	100 (1 Hr.)

Stonewall County

Henshaw	1-Moore	H&TC Sec-136 Blk-1		T.D. 3342	Dry

Upton County

Zoch	1-Union	Land Murphy Sec-1		T.D. 2199	Dry

Winkler County

Atlantic et al	11-Hendricks	PSL Sec-40 Blk-26		2765-2780	30000
Cranfill-Reynolds	4-Hendricks	PSL Sec-33 Blk-26		2740-2744	12000
Gulf Prod	17-Hendricks	PSL Sec-45 Blk-26		2575-2685	1428 (1 Hr.)
Gulf Prod	19-Hendricks	PSL Sec-45 Blk-26		2689-2825	315 (1 Hr.)
Roxana et al	6-Grisham	PSL Sec-45 Blk-26		2783-2786	1097 (1 Hr.)
Roxana et al	8-Hendricks	PSL Sec-29 Blk-B-5		2940-2942	96 (1 Hr.)
Roxana et al	3-Hendricks	PSL Sec-40 Blk-26		2675-2760	400 (1 Hr.)
Roxana et al	4-Hendricks	PSL Sec-40 Blk-26		2750-2850	85 (1 Hr.
Pure	9-Hendricks	PSL Sec-41 Blk-B-5		2640-2650	420
Pure	10-Hendricks	PSL Sec-41 Blk-B-5		2712-2771	403
Pure	9-Hendricks	PSL Sec-34 Blk-B-5		2824-2836	500

PANHANDLE

Hansford County

Caldwell et al	1-Adriance	GH&H Sec 21 Blk-3		T.D. 3233	Dry

Moore County

Amarillo	1-Sneed	T&NO Sec-51 Blk-6-T		2130-3305	25M

Potter County

Babbett-Allen	1-Bush	BS&SF Sec-47 Blk-9		T.D. 660	Dry

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended September 22, 1928

	Sept. 22 Week Ended					Sept. 15				
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Osage	2	8	24	1	35	3	11	20	1	35
Bristow-Cushing	4	3	34	6	47	5	7	32	5	49
North Oklahoma	7	1	48	28	84	5	7	46	27	85
South Oklahoma	6	8	73	29	116	6	12	74	22	114
Muskogee	..	10	32	26	68	..	10	40	21	71
Okmulgee-Bristow	11	32	65	22	130	11	41	58	23	133
Seminole Dist.	12	63	318	32	425	16	68	324	25	433
Total Oklahoma	42	125	594	144	905	46	156	594	124	920
KANSAS	*70	...	193	62	325	*76	...	193	62	331

	Sept. 22 Week Ended					Sept. 15				
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
TEXAS										
Central	51	30	203	147	431	71	32	222	137	462
Panhandle	19	17	93	55	184	14	21	81	59	175
N. Central	29	36	110	37	212	36	31	108	35	210
West	65	38	237	132	472	58	28	243	120	449
Total Texas	164	121	643	371	1,299	179	112	654	351	1,296
New Mexico	7	4	26	13	50	10	2	28	18	58
GRAND TOTAL	283	250	1,456	590	2,579	311	270	1,469	555	2,605

*Loc. and Rigs combined.

Completions in Oklahoma and Kansas, Week Ended September 22, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	4	SW NW NE 23-1-3 W	2301-2470	115
Atlantic Prod	1	NE SE SE 19-1-3 W	3211-3222	30

Comanche County

Korthans et al	1	C NE SW 14-1-12 W	T.D. 3780	Dry

Creek County

Madden et al	3	SEc NW SE 13-15-9 E	T.D 3533	Dry
Transcontinental	2	NW SW SW 27-16-9 E	T.D. 3406	OWD Dry
Havel et al	1	NEc SE 10-14-10 E	3194-3199	10
Madden et al	2	NEc SW SE 13-15-9 E	3425-3428	400
Hayden	4	CWL NW SW 6-19-10 E	1968-2012	25
Glad	1	NWc 17-19-9 E	2143-2167	3M
Tidal	4	SEc NW SE 20-17-7 E	2752-2778	70
Twin State	2	SEc SW NE 20-17-7 E	2790-2817	200

Grady County

Becker et al	1	NWc 24-4-8 W	2255-2342	5M

Jefferson County

McGinley et al	3	NEc NW NW NW 20-7-5 W	772-790	12

Kay County

Carter et al	3	CWL E½ SE NE 18-29-1 E	3445-3454	515
Burnham et al	4	SWc NE NE 7-27-2 E	T.D. 583	Dry

Muskogee County

Mussellem	1	CEL SW SE 28-15-18 E	T.D. 1250	Dry
Metzger et al	3	NEc SW SW 1-14 18 E	929-938	75
Williams	3	SW NW NE 17-15-17 E	1415-1417	12M
Bryan-Emery	6	CWL E½ NE 8-15-15 E	1060-1065	12M

Noble County

Marland et al	1	NWc SW 32-20-1 W	T.D. 5290	Dry

Okfuskee County

Umbrum	6	CSL NE NW 2-10-11 E	1760-1780	30

Okmulgee County

Chief Drlg	1	SWc NE 27-12-12 E	2358-2378	90
Tiger Mountain	3	SWc NE SE 2-13-14 E	1982-1990	75
Curtis et al	1	SWc NW 3-15-12 E	T.D 2674	Dry
Smith	1	SWc SE NE SW 17-14-13 E	T.D. 1250	Dry
Swindler et al	7	C SE SE 36-15-14 E	T.D. 658	Dry

Osage County

Tidal Osage	17	NEc SW 34-22-10 E	T.D. 2638	Dry
Branstetter	1	SE NE SE 22-22-11 E	1603-1634	15
Silurian	3	NW SE SE 12 23-11 E	1497-1535	20
Winona	8	SW NW SW 27-24-10 E	1358-1372	10

Pontotoc County

Blackstock et al	1	NWc 29-5-8 E	1007-1025	8
Louisiana	14	SW NE NE 19-5-8 E	2609-2670	367

Pottawatomie County

Gypsy	2	NEc 30-7-5 E	4324-4332	6262
Sinclair	2	SWc 19-7-5 E	4140-4183	510
Independent	4	NW SE SE 19-7-5 E	4105-4157	5600
Phillips	2	SE NE NE 25-7-4 E	4160-4197	727
McCullough et al	3	NE SE NE 25-7-4 E	4220-4237	827
Gypsy	1	NW NE SE 25-7-4 E	4203-4248	1165
Sinclair	4	NW SW SW 24-7 4 E	4090-4165	1500
Interocean et al	1	NEc SE 24-7-4 E	4073-3190	360
Magnolia	3	SEc NW 23-7-4 E	3800-4000	50
Interocean	3	SE NE SE 23-7-4 E	4107-4150	327
Interocean	2	SW NW SE 23-7-4 E	4143-4155	75
Independent-Darby	1	NWc 23-7-4 E	3734-3889	192
Darby	2	NEc 22-7-4 E	3734-3818	22M
Wilcox	1	SE NE NW 10-7-4 E	3781-4067	25
Slick	1	SEc 16-6-5 E	T.D. 4745	Dry
Pierce	3	SWc NE 25-7-3 E	T.D. 4343	Dry

Seminole County

Carter	2	NE SW NE 23-7-6 E	T.D. 4425	Dry
Independent	3	SW NE NE 15-7-6 E	T.D. 4515	Dry
Magnolia	1	SE SW SE 10-7-6 E	T.D. 4750	Dry
Sinclair	4	NE NW NW 36-8-6 E	T.D. 4340	Dry
Amerada	1	NE NW SE 8-8-6 E	T.D. 4363	Dry
Sunray	4	SE NW SE 18-5-8 E	2602-2692	1385
Magnolia	1	SEc 3-18-7 E	T.D. 3200	65
Carter	2	SW NW NW 24-7-6 E	4243-4249	2015
Barnsdall	1	NWc NE 23-7-6 E	4339-4351	1477
Reiter-Foster	3	SW NW SW 14-7-6 E	4165-4327	1025
Champlin	2	NE SE NE 14-7-6 E	4215-4239	1100
Carter	3	NE NW NE 14-7-6 E	4122-4127	2662
Continental	6	NEc NW 36-8-6 E	4252-4504	75
Carter	2	NE SW SW 6-9-6 E	4579-4595	475
Skelly	1	SWc NW 6-9-6 E	4370-4382	2224
Barnsdall	1	NEc 5-9-6 E	4347-4402	65
Skelly	1	SEc NE 1-9-5 E	4436-4447	2499

Stephens County

Medlin et al	4	SEc NW NW NE 34-1-8 W	1676-1682	20
Medlin et al	2	SWc SE SW SE 34-1-8 W	T.D. 1687	..

KANSAS

Butler County

Mohawk	5	CEL SE NE 6-27-6 E	2726-2765	350
Empire	2	NE SE NW 27-27-5 E	2724-2748	400

Coffee County

Union Gas	1	C SW NE 8-22-14 E	T.D 1392	Dry

Cowley County

Wakefield	1	SWc SE 21-30-6 E	T.D 3345	Dry
Roth-Faurot	2	SW NE SE 32-32-5 E	618-620	.06M
Roth-Faurot	4	Lot-4, Blk-38, 22-32-4 E	2940-2973	2.5M

Elk County

Sherman et al	1	NW SW NW 10-31-10 E	1982-2012	350
Sonner	3	SWc 10-31-10 E	1988-2012	100
Tory-Murfin	1	SE NW SW 10 31-10 E	1990-2021	225
Denton Bros	1	SE NE NE 9-31-10 E	2036-2070	25

Greenwood County

Doaks Bros	1	SEc NW 4-26-13 E	1542-1545	3M
Henderson et al	1	NWc NE NE NE 29-26-9 E	1068-1079	2.5M
Empire	10	NE SE NW 25-22-12 E	1665-1720	150
Bilyeau	1	NEc SW 22-27-12 E	T.D. 2005	Dry
Carney	1	NW SW NW 18-25-12 E	T.D. 1886	Dry

McPherson County

Derby	1	C SW SW 21-18-2 W	T.D. 3501	Dry

Rooks County

Krueger et al	1	SEc SW 11-9-16 W	3326-3322	175

Russell County

Mid-West Explo	4	NE NW NW 31-12-15 W	3038-3068	175

Completions in North Louisiana and Arkansas, Week Ended September 20, 1928

Louisiana—Caddo—Vivian

Company	Well	Location	Depth	Yield
W. T. Bell	Posey No. 4	33-22-16	2415	salt water, aband.

Caddo Parish—Blanchard

Haynes Brothers	La. Livestock No. 3	8-19-16	2330	dry, aband.

Webster Parish—Cotton Valley

Magnolia Pet. Co.	Alabama-Coyle No. 2	21-21-16	4862	dry, aband.

Bossier Parish—Bellevue

William Gross et al.	Stewart No. 1	15-18-12	3067	junked, aband.

DeSoto Parish—Naborton

La. Public Utilities Co.	Williams No. 1	22-12-12	1004	1M gas

Morehouse Parish

Southern Carbon Co.	Tensas Delta No. 5	9-20-4E	2138	13M gas

Ouachita Parish

Jordan Drilling Co.	Cole No. 2	6-18-4E	2180	4M gas

East Texas—Panola County

Company	Well	Location	Depth	Yield
Bethany O. & G. Co.	Louis Werner No. 4	J. Storey HRS	1019	salt water, aband.
Magnolia Pet. Co.	Baptist Church No. 1	J. Womack HRS	2491	10 bbls.

Arkansas—Bradley County

Ohio Oil Co.	Southern Lumber No. 1	15-16-10	3609	dry, aband.

Union County

Clark, Trustee	Dumas No. 1	8-17-16	3518	dry, aband.
R J. McMurry	Hale No. 1	23-19-15	3505	dry, aband.

Union County—Rainbow City

O. W. Estes	Rowland No. 4	14-17-14	3019	130 bbls.
Magnolia Pet. Co.	Carroll No. 4	1-17-14	2982	2M gas, 30 bbls.
Marr & Hoosier	Slade No. 2	3-17-14	2740	salt water, aband.
Murdock et al	Gregory No. 5	10-17-14	3206	15 bbls.
Ohio Oil Co.	Furlow No. 1	12-17-14	2982	25M gas
Skelly Oil Co.	Slade No. 1	3-17-14	3236	140 bbls.

New Field Operations in Oklahoma, Kansas, Panhandle, North, North East and West Texas, Week Ended September 22, 1928

OKLAHOMA

Caddo County

Company	Well No. Farm	Location
Bullock et al	2-Rigney	SWc NW NW SE 12-5-9 W
Magnolia	2-Cutshall	NEc SE SE 5-5-9 W

Carter County

Boring et al	5-Walker	SEc NW SE NW 10-4-2 W

Creek County

Baker et al	2-Grayson	CSL NE NW 4-18-12 E
Roxana	8-Sewell	NW SE NE 18-19-9 E

Grady County

Twin State	4-Cox	SE NE SE 14-4-8 W
Little Nick	4-Farwell	SEc 26-5-8 W

Kay County

Early et al	2-Gaylor	CNL SW 19-27-1 W
Marland	3-Hall	C SW NE 18-25-2 E

Muskogee County

Dixon et al	6-Davis	NWc NE NW NW 12-14-18 E
Haner et al	3-Stepney	CWL SW SW 9-15-18 E
Bryan-Emry	7-Barnett	SWc NE NE 8-15-15 E

Okfuskee County

Irelan et al	1-Holmes	NEc SE NW 32-11-11 E

Okmulgee County

Rebold	1-Bird	C SE NW 22-13-12 E
Winemiller	1-Boon	C NW SE 20-14-12 E
Blake et al	2-Anderson	SWc NE NE 2-15-14 E

Osage County

Link	10	SE NW SW 34-25-9 E	OWD
Peters	5	CSL NW 26-25-9 E	
Jones	1	SE SW NW 25-26-8 E	OWD

Pottawatomie County

Slick	1-Haer	NEc SW 31-10-5 E
Amerada	1-Hallum	NE SE SE 1-8-4 E

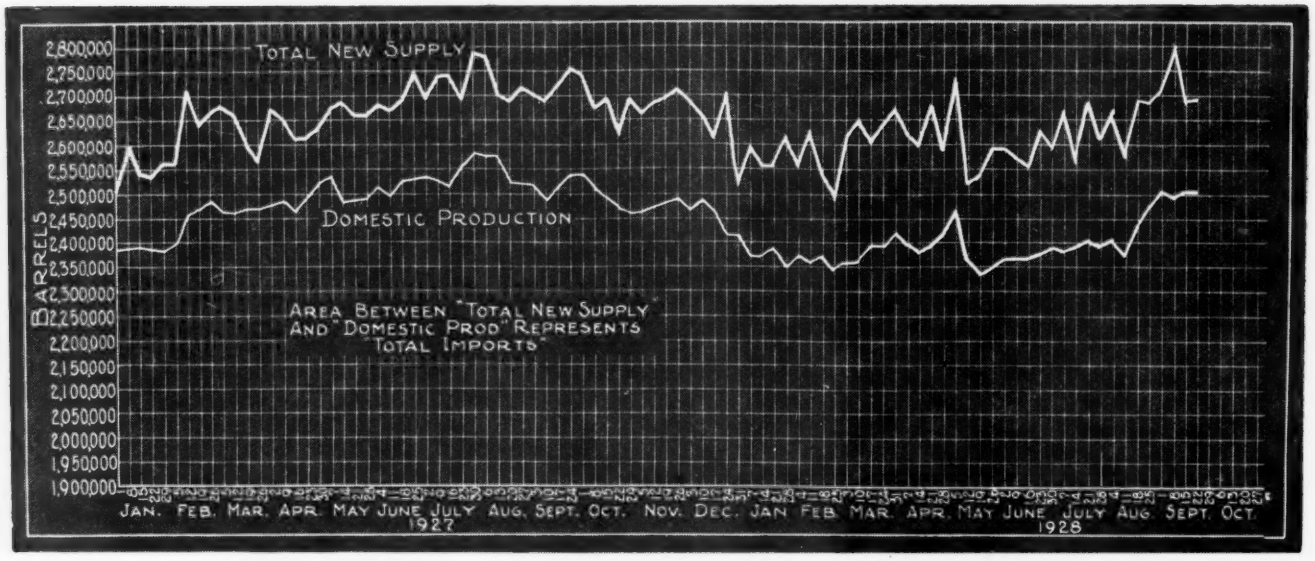
(*Continued on Page 45*)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North East and West Texas, Week Ended September 22, 1928

(Continued from Page 44)

Company	Well No. Farm	Location	
Seminole County			
McMann-White-Eagle	1.....	NE SW SE 9-8-5 E	
Sinclair	1-Bellare	NE NW NE 19-8-5 E	
Shaffer	4-Cherry	SEc 23-7-4 E	
Sinclair	13-Blandin	SWc 24-7-4 E	
Blackwell	3-Cherry	NW NE NE 25-7-4 E	
Gypsy	3-Collins	SW NE SE 25-7-4 E	
Gypsy	4-Collins	SE NE SE 25-7-4 E	
McCullough et al.	5-Smith	SE NW SE 25-7-4 E	
McCullough et al.	6-Smith	NE SW SE 25-7-4 E	
Sinclair	2-Neeley	NE SE SW 25-7-4 E	
Texas	4-Cherry	NWc 25-7-4 E	
Empire	1-School Land	NEc 36-7-4 E	
Slick	1-Hembree	SE NW SE 18-7-5 E	
Sinclair	8-Kitchee	NW SW SW 19-7-5 E	
Magnolia	6-Youts	NE SW SW 29-7-5 E	
Sinclair	4-Nadash	SWc NW 20-7-5 E	
Gypsy	8-Stahl	SEc NE 30-7-5 E	
Independent	5-Blandin	SE NE SW 30-7-5 E	
Independent	6-Blandin	SW NW SW 30-7-5 E	
Shaffer	2-Tolon	NW SW SW 30-7-5 E	
Seminole County			
Gypsy	15-Sango	C NE SE 1-9-5 E	
Slick	4-James	NW SW SE 6-9-6	
Texas	2 James	SW NW SE 6-9-6 E	
Pure	1-Brinsch	SW NW SW 24-7-6 E	
Texas	1-Reed	NE SE SE 23-5-7 E	
Louisiana	2-Statler	SW SE SW 7-5-8 E	
Stephens County			
Mudge	4-Cobb	SE NW NE 1-2-5 W	
Mudge	3-Cobb	NE SW NE 1-2-5 W	
Mudge	2-Cobb	NW SE NE 1-2-5 W	
Mudge	1-Cobb	SW NE NE 1-2-5 W	
Petroleum Prod.	7-Bond	NEc NW NW SW 7-2-7 W	
Pace et al	1-Brown	NEc SE SE 24-2-8 W	
Medlin et al	3-Simpson	SWc NE SW SE 34-1-8 W	
Tillman County			
Pearson	2-Indian	SWc 3-5-15 W	
KANSAS			
Barton County			
Midwest Expl.	1-Karst	SWc 11-16-15 W	
Butler County			
Syndicate	2-Brewer	NW NE NW 26-28-7 E	
Empire et al	4-Sluss	NE SW SW 6-27-6 E	
Garden et al	2-Sluss	SW NW NE 6-27-6 E	
Empire	4-Willett	SEc NW 27-27-5 E	
Empire	3-Willett	NW SE NW 27-27-5 E	
Empire	6-Cranston	SWc SE 22-27-5 E	
Cowley County			
Pyle-Sutter	1-Lundstrom	SWc NE 9-35-4 E	
Roxana	1-Cally	NE NW SW 18-35-3 E	OWD
McCullough et al.	1-Wallace	SWc NE 12-34-4 E	
Krow White	1-Powers	C NW NE 9-32-5 E	
Arkansas Fuel et al.	2-Brown	SW NE SW 6-32-5 E	
Market et al.	1-Botom	SEc SW 11-31-6 E	
Slick-Markin	1-Alspah	SWc NE 27-31-5 E	
Trees	4-Hittle	SE SW NE 21-31-4 E	
Shawver et al.	1-Morgan	NWc NE 14-31-3 E	
Elk County			
Sherman et al.	3-Baker	NWc SW 10-31-10 E	
Denton et al.	1-McSpadden	NE NW NW 10-31-10 E	
Tory-Murfin	1-Harris	SE NW SW 10-31-10 E	
National Union	5-Eyeman	NE SE NE 9-31-10 E	
National Union	4-Eyeman	NEc SE SE SE 9-31-10 E	
Wilson-Jones et al.	2-Walker	C SE 5-31-10 E	
Mann et al	1-Shader	SWc 12-31-8 E	
Elk Pet	1-Hyde	NE SE NW 9 30-9 E	
Superior et al	1-McIntyre	SE NE NW 4-30-9 E	
Ellis County			
Phillips	1-Bruell	C NW 34-14-17 W	
Sedgwick			
Barnsdall	1-Samuels	NEc NW 24-25-1 E	
Barnsdall	1-Taber	SWc NE 6-27-1 W	
Tatlock-Roxana	1-Goeldner	NWc NE 6-29-2 E	
Sumner County			
Blankenship et al.	1-Rucker	SEc 2-31-1 E	
Grayson County			
Orton et al	1-Dalton		Reeves
TEXAS			
NORTH TEXAS			
Archer County			**Survey**
Kemrow	2-Campbell	Blk-1, League-3	DCSL
Brown-Lickey	1-Wallace	Blk-11, League-3	DCSL
Harrison et al	5-Jackson	Blk-5, League-3	DCSL
Pandem	1-Wilson	.....	Hutchinson
Golding et al	1-Graham	.....	Snell
Underwood Drlg.	1-Andrews	Sec-1805	TE&L
Smith	2-Prideau	Sec-1860	TE&L
United Prod. et al.	1-Richardson	Sec-2424	TE&L
Gulf Prod	4-Hayter	Sec-2409	TE&L
Gilliland	5-Neimeyer	Sec-2415	TE&L
Texas	5-Hayter	Sec-2409	TE&L
Consolidated	1-Hayter	Sec-2415	TE&L
Reed et al	1-Ickert	Blk-17	Holman
Clay County			
Hamilton	1-Wade	Blk-12	Dailey
Hamilton	2-Wade	Blk-12	Dailey
Stumpf	3-Boddy	.....	HT&B
Cook County			
Stoneman et al.	1-Pottet	.....	Stephens
Griffith et al.	1-Weelock	.....	Teel
Benson Bros. et al.	1-Dougharty	.....	Garner
Powell	1-Dennis	.....	Pope
Foard County			
Empire-Marland	1-Halsell	.....	Moore
Grayson County			
Orton et al	1-Dalton	.....	Reeves
Wichita County			
Magnolia	3-Pace	.....	Scott
Wilbarger County			
Murchison	1-Murphy	.....	McKinney
Derby	3-Waggoner	.....	Purnell
Hines	1-Ancell	Sec-34, Blk-6	H&TC
Cosden	28-Waggoner	Sec-31, Blk-4	H&TC
Hawkins et al	1-Waggoner	Sec-36, Blk-14	H&TC
Fain-McGaha	1-Waggoner	Sec-1	SP
Phillips	2-Waggoner	Sec-5, Blk-5	H&TC
Waggoner	9-Waggoner	Sec-30, Blk-4	H&TC
Fain-McGaha	1 Waggoner	Sec-50, Blk-4	H&TC
Young County			
Wolfe	4-Lowe	Sec-59	TE&L
Chancellor	1-Bishop	Sec-1444	TE&L
Riggs	13-McKinley	Sec-1489	TE&L
Riggs	14-McKinley	Sec-1489	TE&L
Kleiner et al	23-Langston	Sec-1490	TE&L
Kleiner et al	3-Davis	Sec-1487	TE&L
Mook Texas	7-Davis	Sec-1487	TE&L
Shappell	4-Garrett	Sec-1487	TE&L
Pennell et al	5-Johnson	.....	Sargent
Morris-Smith	1-Riley	Sec-1915	TE&L
Callendar et al	2-Davis	Sec-1395	TE&L
Wnatley et al	1-Benson	Sec-1478	TE&L
Atlantic et al	1-Marshall	Sec-3401	TE&L
Cooper-Britton	1-Parrish	Sec-409	TE&L
Peckham	1-Willett	Sec-1920	TE&L
Schermerhorn et al.	3-Thompson	Sec-2692	TE&L
NORTH EAST TEXAS			
Anderson County			
Humble	2-Smith	.....	Roberts
Humble	1-Roberts	100 Acre tract	Roberts
Smith	1-Neches R. bed	.....	Sassamon
Brown County			
DeLong et al	1-DeBusk	Blk-5	Newton
Cranfill-Reynolds	13-Eubanks	Blk-141	Mitchell
Lloyd	6-Collier	Blk-139	Smith
Curry et al	1-Kilgore	blk-153	Mitchell
Rowan-Tong	1-Jones	.....	Cross
Kone Prod.	16-Hickman	Blk-783	Benson
Nat. Gas & Fuel	3-Capps	Blk-18	Hunt
Young Bros. et al.	11-Teston	Blk-151	Curlong
Malcolm	1-Cobler	Blk-324	Wardszisk
Campbell et al	1-Sweet	Sec-59 OWD	HT&B
Callahan County			
Beddingfield et al.	1-Cavanough	Sec-47	Comal Co. Sch. Ld.
Schaffner	3-Derrington	.....	Anderson
Cherokee County			
Humble	2-Weinberg	.....	Trimble
Coleman County			
Continental et al.	8-Overall	Blk-66	Overall
Link	1-Stewardson	Sec-91	ET
Comanche County			
Fain	1-McKeehan	Sec-45	D&DA
Montex	1-Gardenhire	Sec-45	D&DA
Eastland County			
Applegate et al	1-Baker	Sec-126	H&TB
Wilkins et al	1-Harrell	Sec-6	ET
Jones County			
Cranfill-Reynolds	1-Bickley	Sec-50, Blk-18	T&P
Sinclair	1-Bickley	Sec-50, Blk-18	T&P
Cosden et al	1-Bickley	Sec-50, Blk-18	T&P
Snowden-McSweeney	2-Bickley	Sec-50, Blk-18	T&P
Snowden-McSweeney	3-Bickley	Sec-50, Blk-18	T&P
McMann	1-Bickley	Sec-50, Blk-18	T&P
Texas	2-Carter	Sec-13, Blk-19	T&P
Roberts	5-Grayson	Sec-13, Blk-19	T&P
Navarro County			
Chapman et al	1-Martin	.....	Rahm
Shackleford County			
Tannehill	9-Mathews	Sec-58	ET
Wentz	1-Mathews	Sec-58	ET
Texas	2-Sedgewick	Sec-1	ET
Terry et al	3-Flippin	Sec-35, Blk-11	T&P
Roeser Pendleton	79-Cook	Sec-60	ET
Roeser Pendleton	13-Cook	Sec-61	ET
Roeser-Pendleton	14-Cook	Sec-61	ET
Roeser-Pendleton	15-Cook	Sec-61	ET
Stephens County			
Texas	15-Gholson	.....	Dennison
Texas-Pacific	12-Veale	Sec-1428	TE&L
Throckmorton County			
Reiter Foster	1-Parrott	Sec-961	TE&L
Baker et al	1-Downing	Sec-913	TE&L
Humble	1-Latham	Sec-986	TE&L
WEST TEXAS			
Coke County			
Mid-Kansas	1-Lackey	SWc Sec-272 Blk-1-A	H&TC
Crockett County			
Matdor	1-Buellsfield	Sec-86, Blk-1	I&GN
Howard County			
Marland	2-Clay	Sec-126, Blk-29	W&NW
Amerada	1-Roberts	Sec-137, Blk-29 OWD	W&NW
Sprague	2-Roberts	Sec-156, Blk-29	W&NW
Marland	9-Roberts	Sec-139, Blk-29	W&NW
Magnolia	15-Roberts	Sec-157, Blk-29	W&NW
Magnolia	14-Roberts	Sec-157, Blk-29	W&NW
Pecos County			
Roxana	10-Tippett	Sec-102, Blk-194	GC&SF
Stonewall County			
Sun et al	1-Raynor	Sec-20, Blk-D	H&TC
Upton County			
Humble	9-Ricker	Sec-5	Denton
PANHANDLE			
Hutchinson County			
White Eagle	4-Montgomery	Sec-2	Whitly
Moore County			
Phillips	2-James Sneed	.....	Robinson
Phillips	1-James-Sneed	.....	Robinson

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Sept. 22	Sept. 15
Production east of Rockies	**1,877,350**	**1,869,300**
Increase		**8,050**
Total Production in U. S.	**2,508,850**	**2,504,900**
Increase		**3,950**
Crude Oil Imports	**183,714**	**187,143**
Decrease		**3,429**
Total Crude Supply	**2,692,564**	**2,692,043**
Increase		**521**

OKLAHOMA

	Sept. 22	Sept. 15
North Braman	2,850	2,900
South Braman	1,450	1,500
Blackwell	3,700	3,600
Hubbard	2,750	2,800
Thomas	1,150	1,200
Tonkawa	11,850	12,300
Garber	8,000	8,200
Burbank	27,900	27,800
Osage, outside Burbank	26,950	27,000
Cushing	19,850	19,850
Yale Jennings	7,600	7,400
Davenport	1,800	1,850
Bristow-Slick	20,800	20,800
North Okmulgee	14,600	14,600
Pearson	3,050	3,050
Lyons-Deaner	5,700	5,700
St. Louis	119,100	103,300
Allen Dome	21,100	21,000
Cromwell	9,050	9,150
Papoose	4,100	4,150
Wewoka	5,500	5,750
Seminole	44,150	47,300
Bowlegs	47,700	50,900
Searight	11,850	12,950
Little River	119,850	115,700
Earlsboro	85,600	91,150
Duncan district	7,650	7,650
Graham	5,200	5,250
Fox	1,650	1,650
Healdton	13,750	13,800
Hewitt	9,450	9,500
Scholem Alechem	15,500	15,500
Others	50,550	51,300
Total, Oklahoma	731,750	726,550
Increase		5,200

KANSAS

Greenwood County	26,600	26,500
Florence-Covert	950	1,000
Peabody-Elbing	3,250	3,150
Eldorado-Towanda	12,750	12,700
Augusta-Fox-Bush	3,250	3,300
Rainbow Bend	1,500	1,600
Russell	4,000	4,000
Churchill	8,900	9,000
Oxford	9,350	9,550
Others	29,000	29,000
Total, Kansas	99,550	100,100
Decrease		550

NORTH LOUISIANA

Homer	4,250	4,250
Haynesville	5,800	5,800
Caddo, light	9,000	9,250
Caddo, heavy	3,200	3,150
De Soto, Red River	3,850	3,900
Elm Grove	550	550
Bellevue	800	750
Cotton Valley	4,300	4,300
Urania	6,700	6,600
Pleasant Hill	500	550
Total, North Louisiana	38,950	39,100
Decrease		150

ARKANSAS

El Dorado	5,200	5,200
Champagnolle	12,700	12,050
Smackover, light	7,300	7,400
Smackover, heavy	55,600	56,000
Stephens	1,050	1,050
Nevada	1,300	1,200
Lisbon	1,850	1,900
Others	600	1,100
Total, Arkansas	85,100	84,900
Increase		200

TEXAS (Outside Gulf Coast)

Panhandle District

Hutchinson County	32,000	32,600
Carson County	6,600	6,650
Gray County	20,800	21,650
Wheeler County	900	800
Others	600	1,000
Total, Panhandle District	60,900	62,800
Decrease		1,900

North Texas

Burkburnett	9,700	9,800
Electra	13,300	13,150
Iowa Park and K-M-A	3,700	3,850
Wilbarger	30,500	31,400
Archer County	19,800	19,950
Montague-Cooke	10,950	10,800
Others	600	600
Total, North Texas	88,550	89,550
Decrease		1,000

West Central Texas

Stephens County	7,150	7,150
Eastland-Desdemona	6,600	6,650
Brown County	11,600	11,800
Coleman County	3,700	3,700
Callahan County	3,450	3,550
Shackleford County	10,800	11,100
Young County	8,100	7,900
Throckmorton County	900	950
Palo Pinto County	400	400
Jack County	1,500	1,650
Others	750	650
Total, West Central Texas	54,950	55,500
Decrease		550

West Texas

Jones County	4,000	4,300
Mitchell and Scurry Counties	2,900	2,800
Howard County	21,250	19,300
Reagan County	18,450	18,500
Crane and Upton Counties	58,200	59,400
Crockett County	2,750	2,600
Pecos County	69,000	72,700
Winkler County	170,300	166,300
Others	1,400	1,400
Total, West Texas	348,250	347,300
Increase		950

East Central Texas

Mexia	6,600	6,550
Currie	550	450
Richland	500	500
Wortham	1,600	1,550
Corsicana-Powell	10,200	9,900
Others	1,300	1,500
Nigger Creek	850	950
Total, East Central Texas	21,600	21,400
Increase		200

Southwest Texas

Luling	13,500	13,650
Lytton Springs	1,000	1,000
Somerset	650	700
Laredo District	8,750	8,500
Dale	1,350	1,300
Others	550	400
Total, Southwest Texas	25,800	25,550
Increase		250
Total, Texas (Outside Gulf Coast)	600,050	602,100
Decrease		2,050

GULF COAST

Coastal Texas

West Columbia	7,500	7,600
Damon Mound	1,800	650
Big Creek	1,400	2,700
Boling	2,000	1,800
Blue Ridge	7,400	7,450
Pierce Junction	9,200	9,300
Humble	1,300	1,350
Goose Creek	6,700	6,800
South Liberty	3,450	3,550
Hull	10,300	10,400
Saratoga	1,050	1,050
Batson	1,400	1,400
Barber's Hill	600	600
Sour Lake	3,300	3,250
Spindletop	39,800	38,800
Orange County	3,650	3,500
Others	3,850	5,000
Total, Coastal Texas	107,700	105,200
Increase		2,500

Coastal Louisiana

Vinton	4,300	4,300
Sulfur Dome	2,350	2,500
Lockport	3,400	3,400
Sweet Lake	3,600	4,100
Evangeline	900	1,000
East Hackberry	2,100	2,800
Edgerly	1,050	1,050
Sorrento Dome	800	1,000
Others	2,950	1,350
Total, Coastal Louisiana	21,450	21,500
Decrease		50
Total Gulf Coast	129,150	126,700
Increase		2,450

ROCKY MOUNTAIN

Wyoming

Salt Creek	41,450	37,250
Grass Creek	2,400	2,350
Elk Basin	1,100	1,100
Big Muddy	2,550	2,600
Lost Soldier	4,150	4,100
Rock Creek	2,500	2,650
Lance Creek	500	550
Oregon Basin	4,350	4,350
Others	3,150	3,100
Total, Wyoming	62,150	58,050
Increase		4,100

Montana

Cat Creek	1,600	1,600
Sunburst	7,800	7,800
Others	150	150
Total, Montana	9,550	9,550

Colorado

Moffat (Craig)	1,250	1,500
Fort Collins	2,050	2,250
Florence	1,100	1,100
Others	2,150	2,500
Total, Colorado	6,550	7,350
Decrease		800

New Mexico

Table Mesa		250
Hogback	500	500
Artesia	1,050	1,050
Rattlesnake	300	500
Others	200	100
Total New Mexico	2,050	2,400
Decrease		350
Total, Rocky Mountain	80,300	77,350
Increase		2,950

California

Santa Fe Springs	36,000	39,000
Long Beach	196,000	200,000
Huntington Beach	52,000	52,000
Torrance	17,000	17,000
Dominguez	11,000	11,000
Rosecrans	5,500	5,500
Inglewood	29,000	29,400
Midway-Sunset	74,000	74,000
Ventura Avenue	55,000	52,000
Seal Beach	28,000	28,000
Others	128,000	127,700
Total California	631,500	635,600
Decrease		4,100

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Put a Hope Vertical Gas Engine to whatever purpose you will—you'll find it a giant of power and endurance, ready to do your bidding promptly and without fail. You'll find in it a super-power combined with an economy which will give you a low-cost service that you can rely upon, year after year.

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INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

J. C. Chatfield 725.
"Phillips Finds Dissolved Sulfur Gives Uniform Results in Treating"

National Petroleum News, July 18, pp. 56-69.

Treating plant consists of three agitators and a sulfur tower provided with a circulating system with submerged spray nozzles for agitation and quick contact rather than the old method of agitation by compressed air. Each agitator has a capacity of 1100 barrels. There are 16 submerged spray nozzles in the tank through which the sulfur-bearing gasoline and doctor solution are forced into the untreated gasoline at the beginning of the treating cycle and through which the mixture of chemicals and gasoline is forced as the circulating pump is started.

M. P. Youker, superintendent of refineries finds he can control treating reaction much more closely if he uses dissolved sulfur instead of flowers of sulfur to break out the doctor.

California Operators' Committee on Gas Conservation 533.
Cross-Index under 974.2
"How to Increase Oil Recovery and Conserve Gas in the Field"

Summary of Operations, California State Mining Bureau, March, 1928, Vol. 13, No. 9, pp. 5-18; Oil Age, May, 1928, pp. 25-30.

An organization of California oil producers, effected primarily to study gas conservation in the oil fields and to recommend measures to be followed by producers in conserving gas, assemble information from records of the larger oil companies and canvass the opinions of engineers and executives of experience in oil production technique. This paper presents a summary of the data gathered and the conclusions reached.

It is definitely asserted that gas conservation increases ultimate oil recovery, it being estimated that production might be doubled by adoption of proper methods of gas control. The function of gas in oil recovery is explained and the importance of a study of gas-oil ratios is emphasized. Application of back-pressure on wells, as a means of controlling gas-oil ratios, is discussed at length and examples of beneficial effects resulting from this practice, are given. As a means of securing the advantages of the proposed methods under competitive conditions, cooperative control of wells and production methods is proposed. An example of the advantages resulting from co-operative control is found in the Ventura Field where, under the guidance of the Operators' Conservation Committee, a successful conservation program was initiated and is now in force. Flow beans are recommended as the most satisfactory means of controlling back pressures, in the case of both free-flowing and gas-lift wells. Better gas-oil ratios in pumping wells may be secured by maintaining elevated casing-head pressures or high fluid levels. Injection of surplus gas into partially depleted oil sands as a means of gas conservation and of stimulating oil and gasoline recovery, is recommended. This practice has already been adopted in certain California fields. The importance of accurate well and production records is emphasized.

National Petroleum News 747.
"How Important Petroleum Tests Are Applied and What They Show"

National Petroleum News, Aug. 1, 1928, pp. 80-92.

The fourth installment of a booklet "Application of Tests" prepared by Committee D-2 of the American Society for Testing Materials to make clear in the minds of members of the oil industry the purpose of and the methods of making the accepted tests for quality and characteristics of various petroleum products.

Smith, N. A. C., and Lane, E. C., 261.
(Cross-Index under 111.)
"Tabulated Analyses of Representative Crude Petroleums of the United States"

U. S. Bureau of Mines Bulletin 291. 69 pages. 1928. Price 15 cents from U. S. Superintendent of Documents, Washington, D. C.

For a number of years, technologists of the U. S. Bureau of Mines have been gathering samples of crude petroleum in various oil fields of the United States and determining their physical properties according to rigidly standardized tests, the results of which permit of true comparisons. This bulletin presents the results of analyses of more than three hundred typical crude oils from the better known oil fields of Alaska, Arkansas, California, Colorado, Oklahoma, Pennsylvania, Texas, Utah, West Virginia and Wyoming. The properties determined and recorded for each oil are: color, specific gravity, A. P. I. gravity, viscosity in Saybolt seconds at 70° F. and at 100° F., pour point, sulfur precentage, initial boiling point and percentage of distillates secured in ten different fractions by a modified form of Hempel distillation at atmospheric pressure, and in five additional fractions secured by further distillation under 40-mm. reduced pressure. The physical properties of the various fractions, as determined by appropriate tests, are also recorded. A complete index adds to the utility of the material and facilitates reference.

Magnolia Pipe Line Runs For July, August

HOUSTON, Sept. 22.—Magnolia Petroleum Co., pipeline department, announces from Dallas headquarters the following crude oil runs for August, which are shown in comparison with July:

	July	August
Hewitt-Graham	173,124 27	154,807.32
Healdton	242,132.69	250,013.02
Cushing	128,159 04	127,066.79
Yale	51,527 65	48 999.52
Duncan	43,935.04	41,158.41
Augusta	38,258 29	38 686.18
Walters-Beaver Creek	8,700.92	9,727.87
Burbank	89.13	83.60
Wewoka	945,586.40	867,887.62
Seminole	155,820.33	120,375.88
Cement	16,358.99	.....
Total, Okla.-Kans...	1,803,692.75	1,658,806.21
Archer	29 188 18	27 957.05
Burkburnett	70,277 12	71,743.01
Comanche	19 549 68	19,399.57
Electra	101 193 73	103,900.06
Corsicana Heavy	9 100 49	9,389.25
Corsicana Light	13,034.12	13 872.64
Henrietta	3,150.45	2,552.38
Howard County	28 023.47	31 438.90
Luling	353,509.86	347 195.61
Lytton Springs	53,808.04	50,891.12
Mexia-Wortham	27 998 46	29 562.61
Mirando	117 110 95	112,334.33
Olden	10 301 72	9 928.31
Panhandle	112 961 65	114,659 62
Panola	1,194.43	1,305.07
Stephens	8,223 82	8,764.42
Thrall	995.05	1,077.61
Gulf Coast	854 60	863.40
Crane-Upton	402,317.79	380 141.52
Glasscock	.....	70 805.70
Winkler	37,967 95	105,409.57
Total, Texas	1,399 471 56	1,513,191.75
Haynesville	2 924.34	3,884.64
Bull Bayou	42 544 32	42 880.13
Cotton Valley	25,570 99	25,015.97
Pine Island	32 670.47	30 950.13
Hackberry	17,925 84	62,192.85
Total, Louisiana.....	121 635 96	164,923.72
El Dorado Light	62,548 42	15,399.76
East El Dorado	4,142 76	4,553.22
Smackover	103,225.59	85,832.62
Rainbow	.....	53,458.19
Total, Arkansas	169,916 17	159,243.79
Grand total	3,494 717 04	3,496,165.47

OKLAHOMA-KANSAS

Report for August		Dly. Avg.
Runs	2,039,257	65,783
Shipments	1,908,410	64,142
Total stock	8,778,770	

TEXAS

Wichita, Wilbarger, Archer		
Runs	204,109	6,584
Shipments	228,250	7,362
Petrolia		
Runs	2,552	82
Shipments	2,552	82
Eastland, Stephens		
Runs	38,092	2,288
Shipments	.....	.....
Total stock—North Central Texas field	289,981	

Oil Men Form Supply Co.

LOS ANGELES, Sept. 22.—The State Oilfields Supply Co. has been formed by former California Petroleum Corp. employees and the company has taken over a 6-acre tract at Butler road between Santa Fe Springs and Norwalk, formerly used by California Petroleum Corp. as a storage yard.

Those in charge of the new company include J. E. Brain, C. R. Ingle, P. M. Goertz and A. D. Mitchell. Those named were formerly employees of the California Petroleum Corp. with the exception of Mr. Mitchell who formerly was at the head of the Coast Supply & Equipment Co. at Long Beach.

HUGHES ROCK BITS
CONQUER HARD ROCK *in* EQUADOR

HUGHES TOOLS
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Everywhere

This photograph was taken on Well No. 34 of Anglo-Ecuadorian Oil Fields, Ltd., near Guayaquil, Ecuador, South America, and shows a 9⅞" Hughes Simplex Rock Bit that has just made 49 feet of hard, abrasive sandstone.

While the cones were worn perfectly round and smooth, the bushings showed no wear.

Reading from left to right the men in the picture are: Bill Scott, driller, and T. E. Beaumont, general superintendent.

(*By Schraeder*)

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TEXAS

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New York City

Our Industry—A Page of Facts and Personalities

By Paul Wagner

National Petroleum News

The transfer of Ralph H. Kinsloe from the Beaumont refinery to the executive offices of the Magnolia Petroleum Co., at Dallas, has been followed by the promotion of Henry H. Ziller to be senior assistant general manager.

Previously Mr. Ziller had been junior assistant general manager and Mr. Kinsloe senior assistant under E. E. Plumly, vice president and general manager of refineries.

Mr. Ziller's connection with the Magnolia dates from 1905, when he first entered the Beaumont refinery office. In 1914 he became Fort Worth plant superintendent. In 1920 he returned to Beaumont to assume the position held down to the time of his most recent promotion.

* * *

V. R. Crouch of the land department and Lowell Adams of the geological department of the Pure Oil Co. have been transferred back to the Tulsa office from the Arkansas district.

* * *

W. L. Childs, vice president and general manager of the Reed Roller Bit Co., officiated at the laying of the cornerstone for the new Arabia Temple under construction by Houston Shriners. Mr. Childs is potentate of Arabia Temple.

* * *

Preston Northrup, independent operator and partner in the firm of Northrup & Carr, San Angelo, has returned after a tour of Europe. He was accompanied by Mrs. Northrup.

* * *

James Anderson, vice president of Humble Oil & Refining Co., Houston, is spending the month of September on a vacation trip to Pacific Coast points, principally in Oregon and Washington.

* * *

W. M. Preston, formerly secretary of the Marland Oil Co. of Texas, before its reorganization into the Marland Production Co., is now assistant to Frank T. Pickrell, vice president and general manager of the Texon-Group 1 companies. He maintains headquarters in newly opened offices in the W. T. Waggoner building, Fort Worth.

* * *

Lee Hager, Gulf Coastal operator and royalty owner, is returning to Houston headquarters after three months in Russia and other points of interest in Europe and Asia.

FRED E. GUTHRIE

Fred E. Guthrie, president of the Arkansas Royalty Co., of Prescott, Ark., and Midland, Texas, spends most of his time these days in the territory for which Midland is a hub. He is one of the most widely known and best liked of the west Texas pioneering group.

Mr. Guthrie's connection with oil dates from the development of the shallow Irma field, in southern Arkansas, where he and his associates own fractions of the royalty under almost all the developed area.

More recently activities have been largely devoted to west Texas and southeastern New Mexico.

The accompanying picture was taken one hot day in July on a motor trip from Midland, Texas, to Lovington, New Mexico, when Mr. Guthrie acted as trail-blazer.

* * *

C. E. Hyde of the Marland Production Co., who previously made Fort Worth his home, is moving to Ponca City headquarters. He recently returned from the Cape Cod region, where he spent his vacation accompanied by Mrs. Hyde. They were guests of W. H. (Bill) Dunning, Fort Worth operator and drilling contractor, on his yacht.

* * *

W. A. Moncrief, who recently resigned as vice president of the Marland Production Co., to engage in business for himself, has returned to Fort Worth headquarters after a vacation spent in the Rocky Mountain territory.

J. Edgar Pew, vice president and general manager of the Sun Oil Co.'s producing operations, is now on a trip to Europe, accompanied by Mrs. Pew. They left Dallas late in August with the expectation of being away several months. Mr. Pew spent several months last spring in South America, in connection with affairs of the Venezuela Sun Oil Co., of which he is president.

* * *

Edgar J. Marston, president of the Texas Pacific Coal & Oil Co., has returned to Fort Worth headquarters after a business trip to Montana and other western states.

* * *

F. J. Adams, agent of the Gulf Production Co., at Fort Worth, returned to headquarters early in September after a pleasure trip to California. Ben C. Belt, division chief geologist, also spent his vacation on the Pacific Coast.

* * *

J. H. Hesterly of the land department of the Louisiana Oil Refining Corp., Shreveport, is in charge of newly established west Texas offices in the Thomas building at Midland.

* * *

Arthur Knapp has resigned as vice chairman of the section of economics, petroleum division, American Institute of Mining & Metallurgical Engineers, because of the press of other work. He makes headquarters in Philadelphia, where he is identified with the United Gas Improvements Co.

* * *

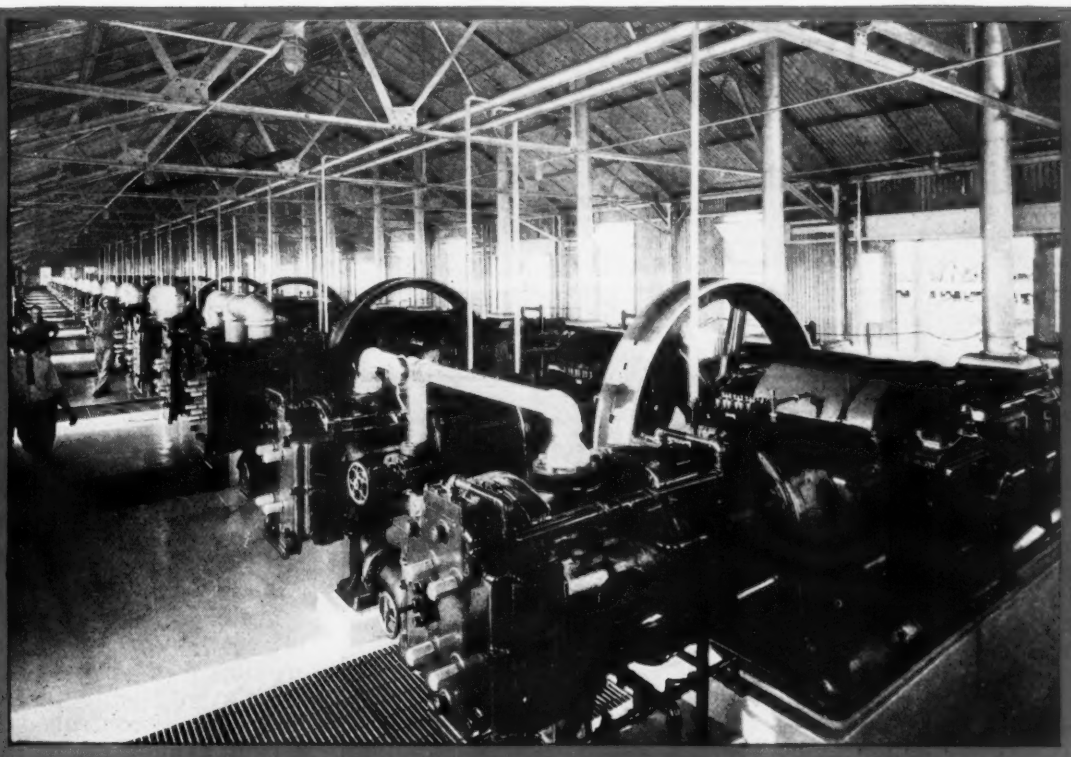
M. E. Wilson, head of the production department, Louisiana Oil Refining Corp., Shreveport, announces the appointment of A. M. Bass to be general superintendent of drilling operations. Mr. Bass formerly was with the Keen & Woolf Oil Co., at Shreveport. He succeeds J. J. Hooper, transferred.

* * *

W. B. Sutton, manager of the southwest division, crude oil department, Vacuum Oil Co., at Houston, recently returned from a business trip to New York City.

* * *

Supt. O. L. Orndorff of the Illinois producing division of the Pure Oil Co. has rounded out more than 22 years of service. He started as a roustabout in January, 1906 and was promoted to division superintendent in June, 1917. His division has gone for nearly two years without a lost time accident, a safety record of which he is proud.



Stewart plant of the Carter Oil Co. with its long line of eighteen 165 H. P. Bessemer Twin Type Tens equipped with 17x17x20 Bessemer Type V. H. Compressor Cylinders.

Because they keep on Running!

TWENTY YEARS or more of continuous service is the rule—not the exception with Bessemers. They are built so that they don't know what wear-out means; they take 24-hour-a-day service for granted and they are unconscious of the passage of the years. And during their decades of service they unfailingly deliver their 99%+ running time.

That is why one large user after another standardizes on Bessemers—for gasoline plants, air-gas lift plants, booster stations, vacuum plants, pumping, pipe line stations and drilling. Experience has proved conclusively that Bessemers unquestionably cost less by the year.

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BESSEMER

Fast Driving Increases Oil Problems; High Sulfur Gasoline Unsafe

By H. C. Mougey*

Read before Ohio Petroleum Marketers Association, Toledo, Sept. 5

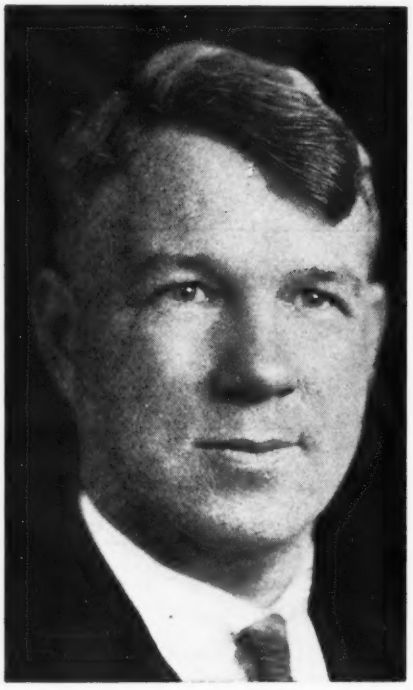
Some Points Emphasized by Mr. Mougey

Greatly increased performance of engines without increasing their size has brought higher operating temperatures and hence new lubricating problems.

Higher average driving speeds caused by snappier engines, better riding cars, better roads and modified speed laws, have decreased mileage per gallon to be obtained from oils generally.

Oil consumption is a problem brought about by high speeds. There is little difficulty in getting satisfactory oil mileage at speeds up to 40 or 45 miles per hour. At 50 miles an hour, the miles per gallon may be only a small fraction of that obtained at lower speeds.

Since all gasoline and similar motor fuels sold in this country contain sulfur, under unfavorable conditions, corrosion of the cylinder walls and crankcase parts occur with any commercial fuel. However, if the percentage of sulfur is kept below 0.10 per cent, the maximum amount permitted by government specification, crankcase corrosion will be eliminated in practically all cases.



H. C. MOUGEY

Automobile engineers are trying to eliminate water in the crankcase by means of crankcase ventilators and jacket water temperature controls. Since corrosion cannot occur in the absence of water these devices greatly decrease corrosion. Unfortunately these devices depend upon the heat of the motor and in winter starting and on short runs, the necessary heat may not be available to permit the ventilator to function in the normal manner.

Consequently oil men should not use these devices as excuses for bad motor fuel containing large amounts of sulfur.

Devices put on modern cars designed to keep water and dirt out of the oil will tend to give longer mileage. Draining every 500 miles with such devices is unnecessary.

LUBRICATING oil ordinarily performs its work so well that we overlook its importance. We are accustomed to consider an automobile as rolling along on four air cushions, but inside the engine there are large areas that slide instead of roll. Each piston in an average engine slides about one-half mile for every mile that the car rolls. The tracks made by the tires rolling along are comparatively small, but if the sliding area of all of the pistons was to leave its mark on the roadway, it would leave a track about 3 feet wide. This is about three times the area of the tracks left by all of the tires. What if all this sliding of metal over metal had to be done without lubrication!

The subject of automobile lubrication is one which is of interest to two industries besides the automobile-driving public. These are the oil industry and automobile industry. However, each of these industries have tended to consider the subject from their own standpoint, disregarding more or less, the other industry and the car owner. The automobile men have designed their engines for power, speed, etc., leaving up to the oil men their lubrication. The oil men have made their oils, and have then proceeded to sell these oils to all car owners, sometimes with little consideration of the design of the engine. To secure best results the oil and the engine must be suited to each other, and the conditions of operation of the engine, such as speed, load, continuous or intermittent driving, climatic conditions, etc., must be considered. The properties of the lubricating oil and the design of the engine are interrelated, and must be properly balanced, and this balance may be greatly modified by the use to which the car owner subjects the automobile.

Many oil tests are used in selecting the proper lubricating oils. This problem may be attacked from opposite directions. The oils may be analyzed and from their properties their performance in the engine predicted. On the other hand, by testing in the engine different kinds of oil, the most suitable oil may be found, and its properties determined with a view of duplicating them in future shipments.

Oil tests would be of no interest to automobile owners if different oils did not give different results in their en-

(*Continued on Page* 56)

*Chief Chemist, General Motors Research Corp.

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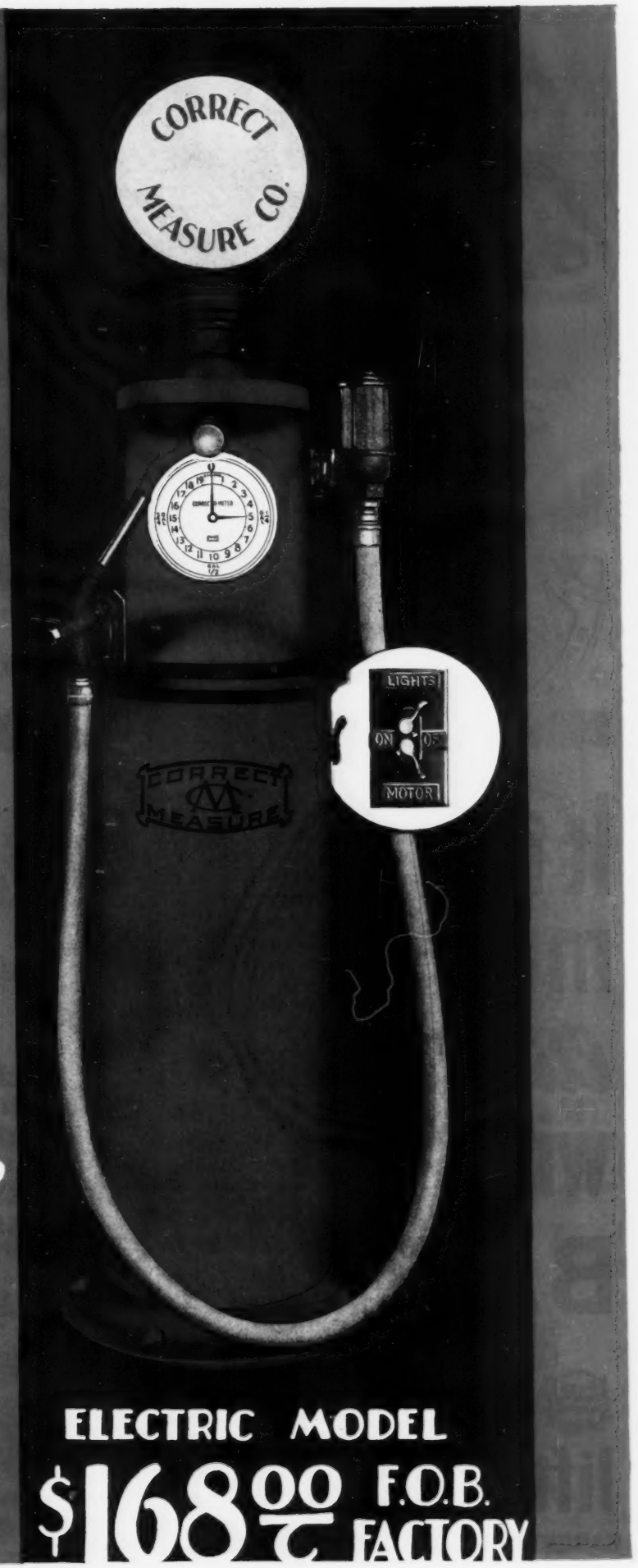

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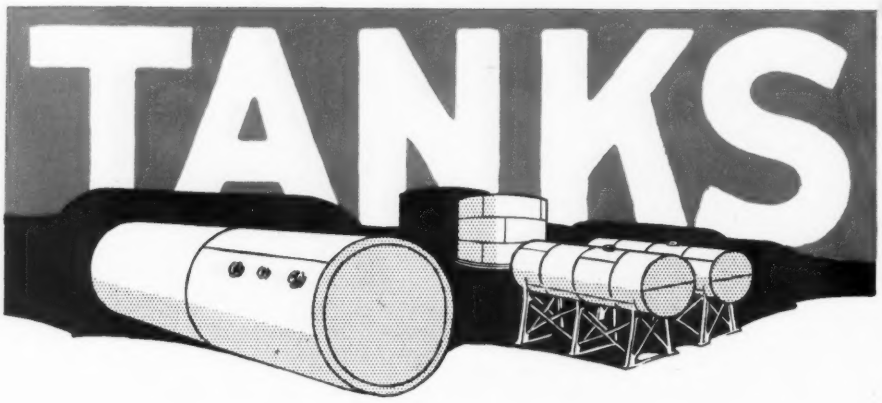

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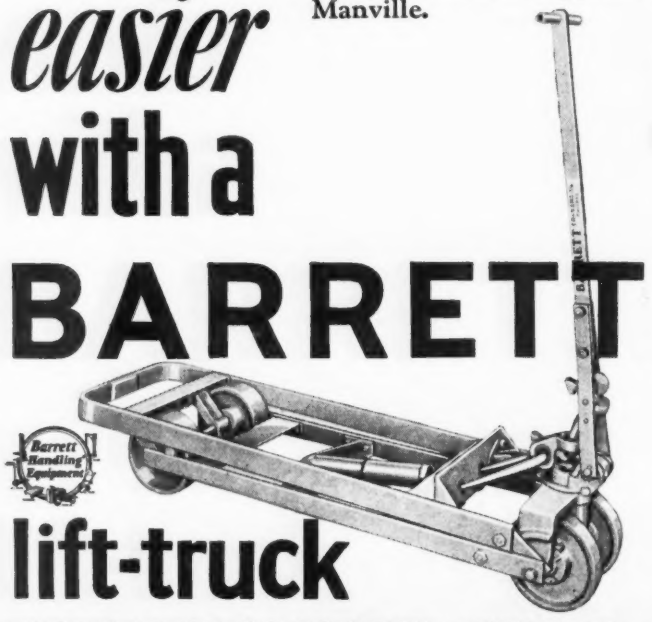

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gines. This means that certain properties of oils affect their performance in engines, and any tests which are not related to the performance of the oils in the engines, are of little interest to automobile owners, although they may be of interest to the refiner in throwing light upon such matters as the source of the oil, the method of refining, etc. The owner uses oil to decrease friction, to decrease wear, and to decrease noise, and wishes to obtain these results at the lowest cost. There is not, of necessity, any connection between these demands. For example, a mixture of oil with finely powdered glass might not give much different results from a pure oil in regard to friction, but it certainly would increase the wear. The common tests applied to oils are gravity, viscosity, flash, fire, color, carbon and pour test. Some of these tests are of interest to the car owner and others are of interest principally to the refiner.

From the standpoint of the owner, viscosity is the most important property. By viscosity is meant the "body" or "thickness" of the oil. Viscosity is not a property peculiar to oils but is possessed by all liquids. It is ordinarily measured by determining the time required for a certain volume of the liquid to pass through a hole under certain standard conditions. As a general rule, any two liquids which have the same viscosity will have the same lubricating value on a rapidly moving bearing. For example, the Bureau of Standards found that it was possible to lubricate a bearing with a syrup made from ordinary sugar dissolved in water just as well as by using the most expensive and highly refined oil of the same viscosity, so long as other troubles were not introduced, such as gumming and corrosion or evaporation of the water.

It should be remembered that there are many other lubricants besides oil. Glycerine, mercury, sulfuric acid, liquid sulfur dioxide, water, and even air are used commercially in different types of machinery. The chief advantages of lubricating oil are due to the facts that it is non-corrosive, cheap, stable, and its viscosity can be varied over wide ranges.

The owner is also interested in viscosity on account of the effects of viscosity on starting, friction, oil circulation, oil consumption, oil pumping, smoking at the exhaust, fouling of spark plugs, carbon formation in the engine, oil pressure, crankcase dilution, noise, etc.

Viscosity is very greatly affected by the temperature of the oil. The design of the engine and operating conditions are the factors which affect the temperature of the oil. During the last few years the tendency has been toward higher operating temperatures. The automobile engineers, without increasing the revolutions of the crankshaft per mile, or without increasing the size or weight of the engine in proportion to the car weight,

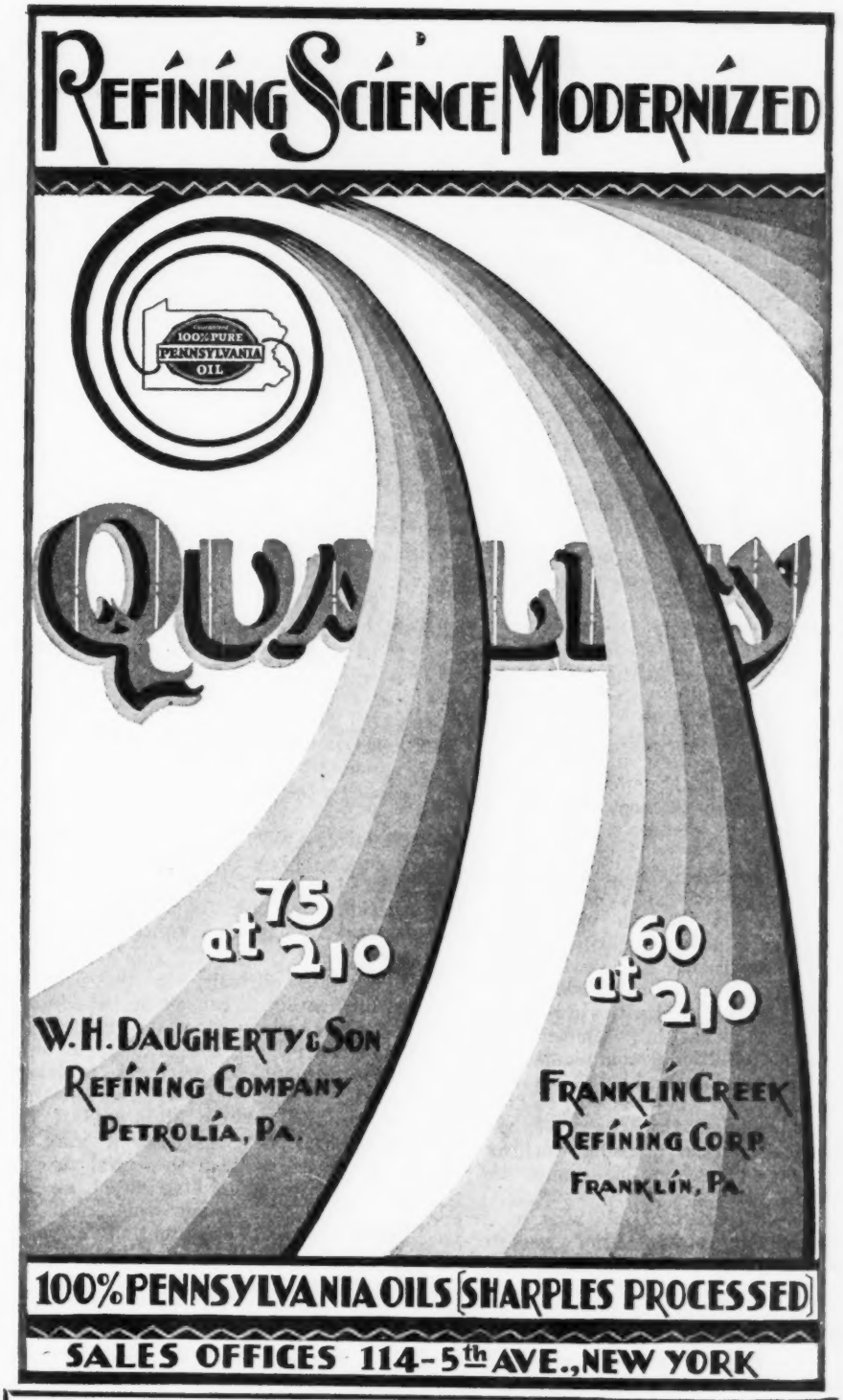
have greatly increased the performance of the engines. Hills that formerly must be taken in lower gear, now seem to level out before the modern automobile. Since more power is developed in the same space, higher operating temperatures usually result. In addition, better roads, smoother riding, engines more free from vibration, modified speed laws, etc., all tend toward higher average driving speeds. These two factors of more power in the same space, and a greater use of the possible power, tend to produce higher temperatures and thus cause a new lubrication problem.

The pressure system is ordinarily used in the higher priced cars. In this system the oil is delivered to many of the engine surfaces by an oil pump. The metering of this oil is determined by the viscosity of the oil, and when the oil is hot and thin much larger amounts are thrown on the cylinder walls. This means high oil consumption at high speeds. With an oil which did not change its viscosity with temperature, this effect would be absent but unfortunately, the viscosity of an oil is not constant but it changes with temperature. When the oil gets hot it gets thin, and if trouble is experienced due to high oil consumption caused by the oil being thinned out by heat, the obvious remedy is to use an oil of heavier viscosity, so that even after it has been thinned by the effect of heat, the viscosity will be sufficiently high.

This matter of high oil consumption is principally a high speed problem. There is little diffculty in getting satisfactory oil mileage at speeds up to 40 or 45 miles per hour. Above these speeds the oil consumption may increase very rapidly so that at 50 miles per hour the miles per gallon of oil may be only a small fraction of that obtained at lower speeds. Since cars are now driven more generally at these higher speeds, oils which were satisfactory two or three years ago may now be very unsatisfactory under present day conditions.

Of course, different lubricating systems could be designed so that the amount of oil used would be decreased, but automobile engineers have learned that one of the most reliable methods of preventing burned out bearings is too supply copious lubrication. Since oil is cheaper than bearing metal, especially when we compare their costs installed in the engine, engineers are probably justified in designing their cars with the safety of the bearings uppermost in their minds.

Volatility of the oil is another property which may influence oil consumption, especially at the high oil temperatures which accompany high speeds. In a test which we made recently to determine the effects of speed, temperature, and of volatility of the oil upon oil consumption, a low priced six-cylinder automobile which is not equipped with a ventilator, was used. Two nationally advertised and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distributed oils were selected for this test. These oils both had the same viscosity at 100 degrees F. of 322 seconds. They varied in volatility. One was practically non-volatile, and the other was intermediate in volatility, typical of a large amount of the commercial oils in this viscosity. At 30 miles per hour the oil consumption for both oils was about the same over 2000 miles per gallon. At 40 miles per hour the miles per gallon was 1100 for the non-volatile oil and 750 for the other. At 50 miles per hour the miles per gallon had dropped to 460 for the non-volatile and only 320 for oil of intermediate volatility. With the higher priced automobiles, capable of making higher speeds, much greater differences can be obtained.

If an oil is very volatile, the oil consumption will be increased by high operating temperatures, but tests have shown that if the crankcase oil temperature is kept below 170° F., then there will be little difference in oil consumption between average oils due to their differences in volatility. This effect of volatility is of practically no importance under ordinary driving conditions. For high speed, high temperature work it has been assumed that asphalt base oils are at a disadvantage on account of their characteristics in this respect, but this is not true of necessity. At high temperatures oils of high viscosity are required, and it is possible to make from either paraffin or asphalt base crudes, oils of this viscosity range with satisfactory volatility properties.

For operation at low temperatures the pour test or cold test of the oil and starting difficulties due to the oil being thick at low temperatures introduce additional complications. The pour test is simply the temperature below which the oil ceases to flow as a liquid under the force of gravity. Under a higher pressure, such as that developed by the oil pump, the oil might still flow very readily.

The viscosity of oils may be determined by putting the viscosimeter under pressure instead of letting the oil flow through the orifice under the force of gravity. Tested in this manner, the pour test has little, if any effect, and the viscosity of an oil below its pour test may be determined. These results check closely with those obtained by estimating the viscosity below the pour test from the curve of viscosity at different temperatures above the pour test. Actual starting tests on engines have shown that the resistance to cranking is determined by the oil viscosity at the cranking temperature, and that the pour test has practically no effect on the power required to crank an engine. However, the pour test does have a very great effect on the flow of the oil to the oil pump.

Tests made in many different laboratories agree in indicating that to insure oil circulation, the oil should be above its pour test. In addition, if the oil pump is placed above the oil level, obtaining its supply through a suction pipe, the amount of oil circulated depends upon the size of the suction pipe and upon the viscosity of the oil at the crankcase temperature.

A. W. MILLER

Who was appointed traffic manager of the Crystal Oil Refining Corp. and of the Burford Oil Co., Shreveport, on Sept. 1

The big difficulty in the problem of lubrication is caused by the change in oil viscosity due to changes in temperature. If the automobile owner is content to drive at moderate speeds, so that the maximum oil temperature is not too high, and if the weather is not too cold, it may be possible to put into the crankcase an oil which can be distributed at low temperatures and yet which will not have high oil consumption at high speeds, but if the range of temperatures is very great, this is impossible.

For example, an oil which has a viscosity of 300 at 100 degrees F., will vary from 49 to 55 at 210 degrees F., depending upon the crude from which the oil was refined. The viscosity at 0 degrees F. will vary from 30,000 to 50,000, again depending upon the crude. Unfortunately, the above viscosities at 210 degrees F. are too light for best results in regard to oil consumption at high speed, and the viscosities at 0 degrees F. are so heavy that starting in severe winter weather is very difficult or impossible with the average starting equipment.

While it is true that, if oils with the same viscosity at ordinary room temperature are considered, those from a paraffin base will have a lower viscosity at low temperatures; usually they will also have higher pour tests. This means that there are advantages and disadvantages to both asphalt and paraffin base oils for cold weather operation, and the automobile and oil engineers should work in their respective fields to make all types of oil more nearly satisfactory.

If any oil company could develop an oil which would not change in viscosity with temperature, many of these problems would be solved, but regardless of claims made for oils from certain crudes as being better in this respect than other oils, the change in viscosity with temperature for all oils is so great as to make this property of oils the greatest cause for lubrication troubles.

From the standpoint of the automobile companies, if something could be done to prevent the great change in temperature in the oils in use in the engines, the problem would also be solved. Although much progress is being made in this direction, the only practical solution to the problem at the present time is for each person responsible for proper lubrication to study the different conditions, and in each case to use an oil which is light enough to permit starting, and which is heavy enough to insure proper viscosity at operating temperatures.

If by engine design the need of heavy oil is decreased and an oil of lower viscosity can be used under high speed and heavy duty conditions, then a very great gain is also made in a number of other respects. As an illustration, let us assume that a maximum crankcase oil temperature of 250 degrees F. at high speed is reduced to 170 degrees F. under the same speed conditions. Let us further assume that with the higher temperature, an oil with a viscosity of 75 at 210 is satisfactory. The viscosity of this oil at 250 degrees would be between 50 and 55, depending upon the type of crude. If a viscosity of 50 to 55 at the operating temperatures is satisfactory, then with a maximum operating temperature of 170 degrees F., an oil which is 50 to 55 at 170 degrees F. should be equally satisfactory. The viscosity of such an oil at 32 degrees F. would be between 1300 and 2600, depending upon the crude, as against a viscosity at 32 degrees F. of from 12,000 to 45,000 for the heavier oil. Since the power required for cranking is roughly preportional to the oil viscosity at the starting temperature, such an oil would greatly decrease starting trouble. With lower viscosity oils, in general, it is easier to obtain lower pour tests, and consequently the difficulties of lack of circulation of the oil at low temperatures would be decreased. In general, the Conradson carbon values on the lighter oils are lower, and tests have indicated that lower Conradson carbon values tend to decrease carbon formation in the combustion chamber.

All of this means that by controlling the oil temperatures, the lighter oils, that are desired in winter for easy starting will give reasonable oil mileage, and the heavier oils, which

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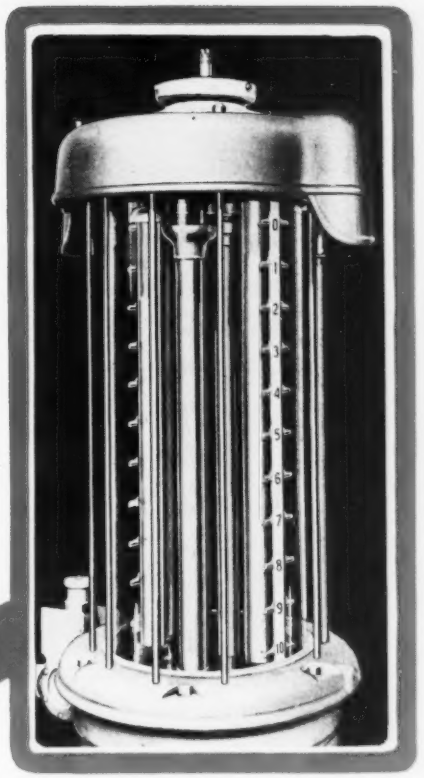

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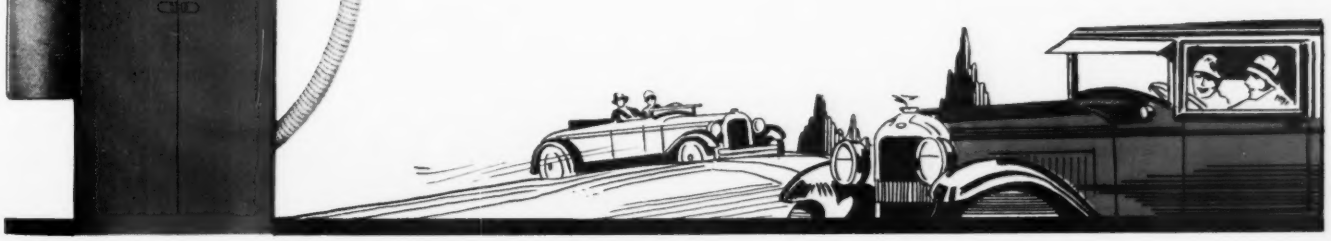

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Crankcase dilution is another important cause for changes in oil viscosity. Unburned fuel, which escapes past the pistons and leaks into the crankcase, dilutes the oil and lowers its viscosity. In the case of a medium bodied automobile oil, a dilution of 10 per cent will decrease the viscosity to about one-half its original value. Crankcase ventilators and control of the jacket water temperatures by shutters or thermostats will make it possible to hold dilution at a reasonable value. The amount of crankcase dilution in an oil depends upon a number of factors such as the driving conditions, the kind of fuel used, and the atmospheric temperature. In the engine the crankcase oil is constantly losing some of the gasoline it contains by evaporation as well as gaining more gasoline from the fuel leaking past the pistons, and the amount of gasoline in the oil at any time is the resulting balance between these two factors. Since gasoline evaporates more rapidly from an oil if there is a larger amount of gasoline in the oil, this dilution tends to reach an equilibrium.

Fortunately, in the winter when the low temperatures would have a tendency to increase the viscosity of the oil to such high values that starting would be difficult or impossible, crankcase dilution is at its maximum, and the effect of the higher dilution is to reduce the viscosity just when this reduction is most needed.

In the past, crankcase dilution was regarded as a great evil, although at the present time it is recognized that the fuel dilution, if kept within limits, is not only comparatively harmless, but in some cases is actually desirable. The dirt and water in the oil are the real objectionable impurities. The water, in addition to causing such troubles as freezing in the oil pump or oil lines, emulsifying the oil so that it changes to the consistency of heavy cup grease and cannot be handled by the lubricating system, also causes other more serious troubles.

All gasoline and similar hydrocarbon fuels carry certain percentages of sulfur as an impurity. This sulfur on burning, forms sulfur dioxide and sulfur trioxide, and these products, reacting with the water of combustion, form sulfurous and sulfuric acids. These products, leaking past the piston rings with the other products of combustion, cause the water, condensed in the crankcase, to be acid in reaction and therefore, more corrosive.

Since all gasoline and similar motor fuels sold in this country, contain small amounts of sulfur, under unfavorable conditions, corrosion of the cylinder walls and crankcase parts may occur with any commercial fuel. In fact, water alone may cause steel or iron to rust. However, if the percentage of sulfur in the motor fuel is kept below 0.10 per cent, the maximum amount permitted by the government specification, crankcase corrosion will be eliminated in practically all cases. The automobile engineers have recognized these facts, and are trying to eliminate water in the crankcase by means of crankcase ventilators, and jacket water temperature controls, such as thermostats and shutters. Since corrosion cannot occur in the absence of water, these devices greatly decrease corrosion. Unfortunately, these devices depend upon the heat of the motor and in winter starting and on short runs or on light duty the necessary heat may not be available to permit the ventilator to function in the normal manner. Consequently, the oil men should not use these devices as excuses for bad motor fuel containing large amounts of sulfur.

Crankcase corrosion has frequently been confused with what appeared to be rapid wear of the cylinder walls and bearing surfaces and faulty lubrication was supposed to be the cause. In most cases it has not been rapid wear, but actual corrosion, and lubrication had little or nothing to do with the problem. In all cases we have investigated we have never found that the oil was a factor, but the real causes have been water and the amount of sulfur in the motor fuel.

Automobile engineers have recognized the importance of these factors and many engines are now equipped with devices to keep water and dirt out of the oil and to hold the fuel dilution at a moderate value. Some of these devices are crankcase ventilators, shutters or thermostats, oil filters, and air cleaners. Unless an engine is equipped with such devices it may be necessary to resort to frequent draining of the crankcase oil to get rid of water and dirt in the oil. If the crankcase holds six quarts of oil and it is drained every 500 miles, it is evident that it will be impossible to obtain over 500 miles per six quarts or 333 miles per gallon of oil. Such a low mileage on oil would not reflect any credit either on the oil companies or the automobile companies. Unfortunately, the properties of the oil are of very little consequence in this respect. If the engine is not fitted with devices to keep out water and dirt, these impurities will collect in the oil and regardless of the original quality of the oil, these impurities are undesirable. The only simple method of getting rid of them under these conditions is to drain the oil. However, with engines fitted with devices to keep these impurities out of the oil, frequent draining is unnecessary, and periods of several months between draining are more reasonable.

One disadvantage of frequent draining of the oil in winter is the possibility of putting into the engine oils that are so high in viscosity that

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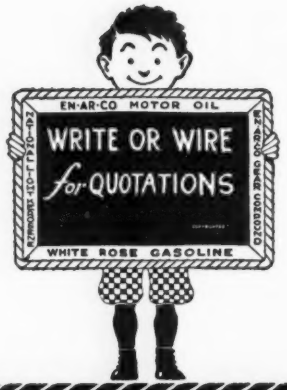

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starting the engine is difficult or impossible.

Under average conditions, starting with an oil which does not contain any dilution, the percentage dilution increases very rapidly at first until after perhaps 100 to 200 miles, an approximate equilibrium is reached. If a medium oil of the desired viscosity had been used at the start, and if the dilution at equilibrium should be about 10 per cent, the resulting viscosity would be about one-half the desired viscosity. However, if an oil of about double the desired viscosity had been taken at the start, and before it was put into the crankcase 10 per cent dilution had been added, the resulting viscosity would be that desired. This is the principle upon which prediluted oils are based. Of course, it is possible to put in the engine an oil of double the desired viscosity, and depend upon naturally occurring dilution reducing it to the proper viscosity, but this requires the operation of the engine at the start with an oil that is heavier than that desired. If the engine should not have been equipped with crankcase ventilator, and jacket water temperature controls, such as shutters or thermostats, water might collect in the crankcase oil in the winter to such an extent as to make it desirable to drain the oil to get rid of the water, just as the equilibrium was being reached and the entire process would then have to be repeated. There are many other tests commonly applied to oils but most of these other tests are largely for the purpose of checking the identity of the oil or following the refining operations in the refinery. Such tests are flash, fire, color, gravity, emulsification, neutralization value, oxidation, saponification number, etc. These tests are of value in establishing the identity of an oil but they are of very little value to the automobile owner.

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Idaho Falls, Ida.—Idaho Community Oil Co., eight filling stations in Montana.

Harrisburg, Pa.—Harrisburg Oil & Supply Co., filling station.

Tulsa, Okla.—Mid-Continent Petroleum Corp., four filling stations in Iowa.

Hastings, Neb.—Continental Oil Co., filling station.

Farley, Ia.—George Shirk, filling station.

Red Key, Ind.—Ernest Green, filling station.

Angola, Ind.—George Shiley, filling station.

Cayuga, Ind.—Mr. Hendricks, filling station.

Dayton, O.—Clifford W. Askin, filling station.

Winslow, Ind.—Lee Dearing, filling station.

Decatur, Ind.—H. O. White, filling station.

Glasgow, Ky.—Gulf Refining Co., filling station.

Ashtabula, O.—Fred Klein, filling station.

Dayton, O.—Main 476 Garage Co., filling station.

Dayton, O.—Clifford W. Akin, filling station.

Central City, Neb.—George Schiller, filling station.

Ottumwa, Ia.—George Reeves, filling station.

Clarion, Ia.—T. H. Coates, filling station.

Santa Rosa, Calif.—Richfield Oil Co., service station.

Staunton, Va.—J. Harry Bryan, filling station.

St. Paul, Minn.—Pure Oil Co., filling station.

Richmond, Minn.—Ed Mills, filling station.

Hanover, Ill.—J. Arthur and A. R. Speer, filling station.

Dayton, O.—Boulevard-Monument Auto Service, Inc., filling station.

Elmira, N. Y.—Elmira Arms Auto Service Co., filling station.

Cory, Pa.—Union Oil Co., filling station.

Elliott, Ia.—C. F. Barns, filling station.

Des Moines, Ia.—Lloyd P. Land, filling station.

Pierson, Ia.—F. W. Whitford, filling station.

Kearney, Neb.—Continental Oil Co., filling station.

Bancroft, Ia.—Standard Oil Co. of Indiana, filling station.

Spencer, Ia.—Chris Peterson, filling station.

Peru, Neb.—Mr. Forsyth, filling station.

Paxton, Neb.—H. L. Stoll, filling station.

Maryville, Mo.—Consumers Co-Operative Gas & Oil Co., bulk station.

Parkersburg, W. Va.—Sterling Oil Co., service station.

Athens, O.—Sterling Oil Co., filling station.

Pittsburgh, Pa.—Gulf Refining Co., filling station.

Fostoria, O.—Refiners Oil Company, filling station.

Circleville, O.—H. M. Crites, filling station.

South Wheeling, O.—South Penn Oil Co., service station.

Quinn, S. D.—E. Brownson, filling station.

Hartford, S. D.—Hartford Oil Co., filling station.

Minneapolis, Minn.—L. D. Williams, filling station.

Sioux Falls, S. D.—Standard Oil Co. of Indiana, filling station.

Topeka, Kan.—Cities Service Oil Co., filling station.

Dayton, O.—Standard Oil Co. of Ohio, filling station.

Fallon, Nev.—Fallon Garage, filling station.

Lawrenceburg, Tenn.—Pan American Oil Co., bulk station.

Lincoln, Neb.—Texas Oil Co., filling station.

Hartford, S. D.—Hartford Oil Co., filling station.

Linton, N. D.—Standard Oil Co. of Indiana, filling station.

Warren, Minn.—Standard Oil Co. of Indiana, filling station.

Waterloo, Ia.—N. P. Sorenson, filling station.

Farley, Ia.—George Shirk, filling station.

Virginia, Minn.—Standard Oil Co., filling station.

Chaska, Minn.—Dr. N. H. Marshall, filling station.

Le Mars, Ia.—Skelly Oil Co., filling station.

Athens, Tenn.—Garland West, filling station.

Decatur, Ind.—Ed Boknecht, filling station.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

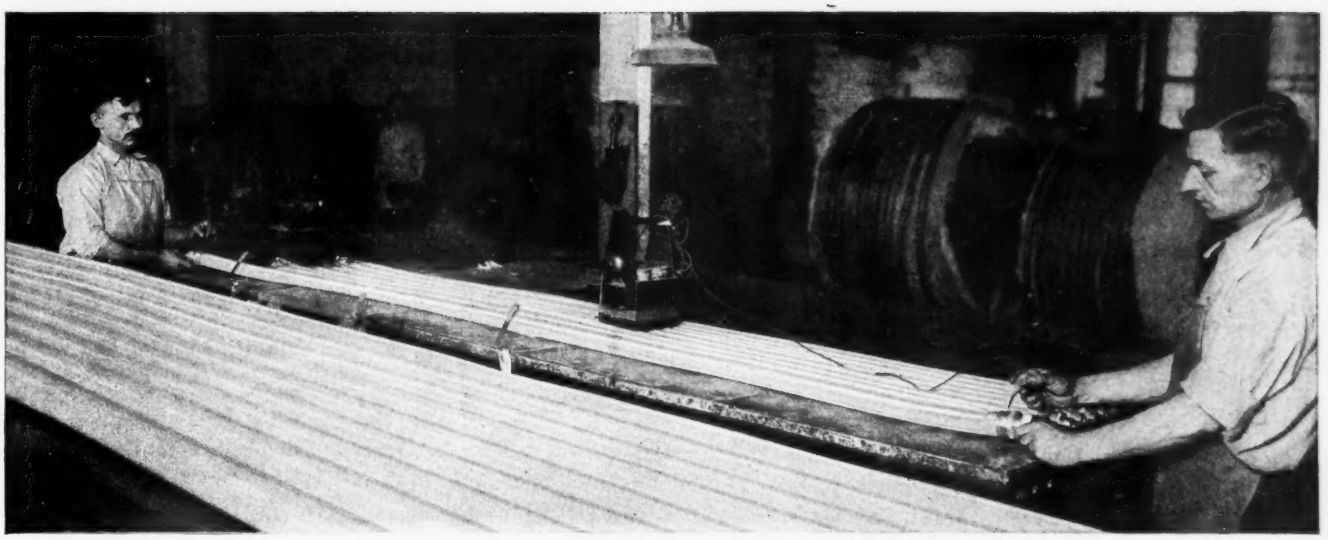
As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"FUELENE" "MAKES WARM FRIENDS" No. 269,201. Paragon Oil Co., Inc., Glendale, N. Y. For heating oils.

"VACLORY" No. 268,122. Vacuum Oil Co., New York City. For oils, greases and waxes of all kinds, and similar products; also gasoline.

"CYCLONE" No. 268,293. Schomburg & Schomburg, Brooklyn, N. Y. For gasoline and lubricating oils and greases.

"MACMILLAN GASOLINE" No. 267,981. MacMillan Petroleum Products Co., Los Angeles, Calif. For kerosene, gasoline, naphtha, motor-lubricating oil, fuel oil, lubricating greases.



The "bell-ringing" test for static electricity. Every length of Goodrich Gasoline Hose is given this test before it leaves the factory.

The "Bell-Ringing Test" Guards Against EXPLOSIONS!

EVERY little while a valuable car or truck burns up—destroyed by a "static" spark which jumped from the hose-nozzle while the tank was being filled.

You can take a long step toward preventing such accidents by equipping every one of your pumps with Goodrich Gasoline Hose!

Every length of Goodrich Gasoline Hose is given a thorough test for static electricity before it leaves the factory. There is absolutely no danger of this hose causing damage, to cars or persons, by throwing sparks.

One serious fire may cost you several times as much as complete equipment of Goodrich Gasoline Hose for every pump you own—protect yourself with this static-proof hose!

THE B. F. GOODRICH RUBBER COMPANY
Established 1870 Akron, Ohio

Goodrich *Gasoline Hose*

The master service station of the U. S. Oil Works Inc., at Omaha

"Master" Station in Omaha Offers Wide Services

OMAHA, Sept. 22

TIME was when a pump dispensing gasoline alongside the curb was considered the height of service to the motorist on his Sunday afternoon drive.

Now, the super service station offers anything from gasoline for your cigar lighter to the vacuuming of upholstery in your car, or putting on a new top.

The U. S. Oil Works at Omaha has just opened its "master" service station here. Five pneumatic auto lifts, auto washer, upholstery cleaner and 12 attendants form part of the equipment and the staff respectively. Car washing, auto body and nickel polishing, vacuum cleaning of seats and motor cleaning, are some of the services that are offered. Tires, accessories are handled.

The station and all driveways for the various services are under one roof. The station covers 130 feet on Twentieth street and 57 feet on Harney street. It is of red faced brick, trimmed in Bedford stone, one story high and cost $40,000.

It was built after Morris Milder, president of the company, and Alan McDonald, architect, had visited various midwestern cities to gather ideas from other super service stations. Many features of other stations were incorporated into the one the company has just opened.

Electricity operates virtually all equipment, including the four gasoline pumps and the lubricating oil fountain. An oil burner will furnish the heat for the building and for the water to be used for washing cars.

The company started in business less than six years ago and now operates 12 filling stations in Omaha, serves 42 Independent dealers and garages with gasoline, has 10 bulk stations at various Nebraska points, operates service stations at five of these points, operates 15 tank trucks and employs over 100 people.

It has storage facilities in Omaha for 1,125,000 gallons of gasoline and 50,000 gallons of motor oil.

An eight-page magazine section in the Omaha Sunday World-Herald of Aug. 26 announced the opening of the new station. Features in equipment and service were described.

The special offer for the opening was a coupon entitling the holder to have his car washed free any time between Sept. 2 and Oct. 1 if he stopped in between Aug. 27 and Sept. 1 for grease and oil for his car. The greasing and oiling work was done free also, but the customer paid for the goods.

The company handles Phillips "66" gasoline and Top Notch motor oil, which it advertises as a 100 per cent pure Pennsylvania oil.

R. B. Cusick is in charge of the 12 attendants at the master station.

Correction

Archibald N. Ferguson, East Cleveland, O., was the architect who designed the service station of the Columbia Refining Co., Lake Shore Blvd. and E. 185th St., Cleveland, which was pictured on page 79 of NATIONAL PETROLEUM NEWS for Aug. 29. Mr. Ferguson has designed several stations for Columbia. Other stations have been designed by Harry T. Jeffery & Son, Cleveland, as mentioned in an article about new Columbia stations.

3 Notable Speakers on A.O.M.A. Program

CHICAGO, Sept. 21.—James A. Gilmore, secretary of the American Oil Men's association, Chicago, is busy arranging a series of attractions for the convention scheduled for Detroit, Oct. 9, 10 and 11. Already he has obtained the final consent of three headline speakers.

W. B. Stout, inventor of the three-motored airplane and president of the Ford Aircraft Industry Inc., will talk on the first day of the meeting.

Harvey Campbell, executive director of the Detroit Chamber of Commerce, also is on the program. "Salesmanship" is the subject which Mr. Campbell will discuss.

C. F. Kettering, director of General Motor Corp.'s laboratory, has tentatively consented to be on the program. R. H. Grant, president of Chevrolet Motors Co., has consented to substitute for him if he can not be there.

Mr. Gilmore has arranged a sightseeing trip through the Ford automobile plant at River Rouge for those who attend the meeting and another trip to the airplane factory at Dearborn, Mich.

Oil Clubs Being Formed By Penna. Jobbers

WASHINGTON, Pa., Sept. 22.—As part of the campaign of the Pennsylvania Independent Oil Men's Association to cover the state with regional oil clubs, organization of the Southwestern Petroleum Club was completed at Greensburg Aug. 20. A meeting of this club was held on Sept. 10 to elect officers for the coming year. These officers were elected:

William Berlin, president and general manager Economy Fuel Co., Greensburg, president; J. B. Flowers, J. B. Flowers Co., Waynesburg, vice president; and F. I. Saunders, Wertenback-Saunders, Inc., McKeesport, secretary and treasurer.

Among those attending the meeting was H. H. Christopher, proprietor of the Christopher Independent Oil Co. here.

A story on page 118 of the Sept. 12 issue of NATIONAL PETROLEUM NEWS said that the western Pennsylvania oil jobbers had organized, but that was not correct. What was meant was the Southwestern Petroleum Club.

TULSA—Joseph Kribbs, well known Mid-Continent operator, has become general superintendent of the Peters Petroleum Corp. J. R. Higgins, who has been doing both land and production work for the company now will devote all his time to land matters.

NULTRA

. . . PROTECTS GASOLINE *from* "SUNBURN"

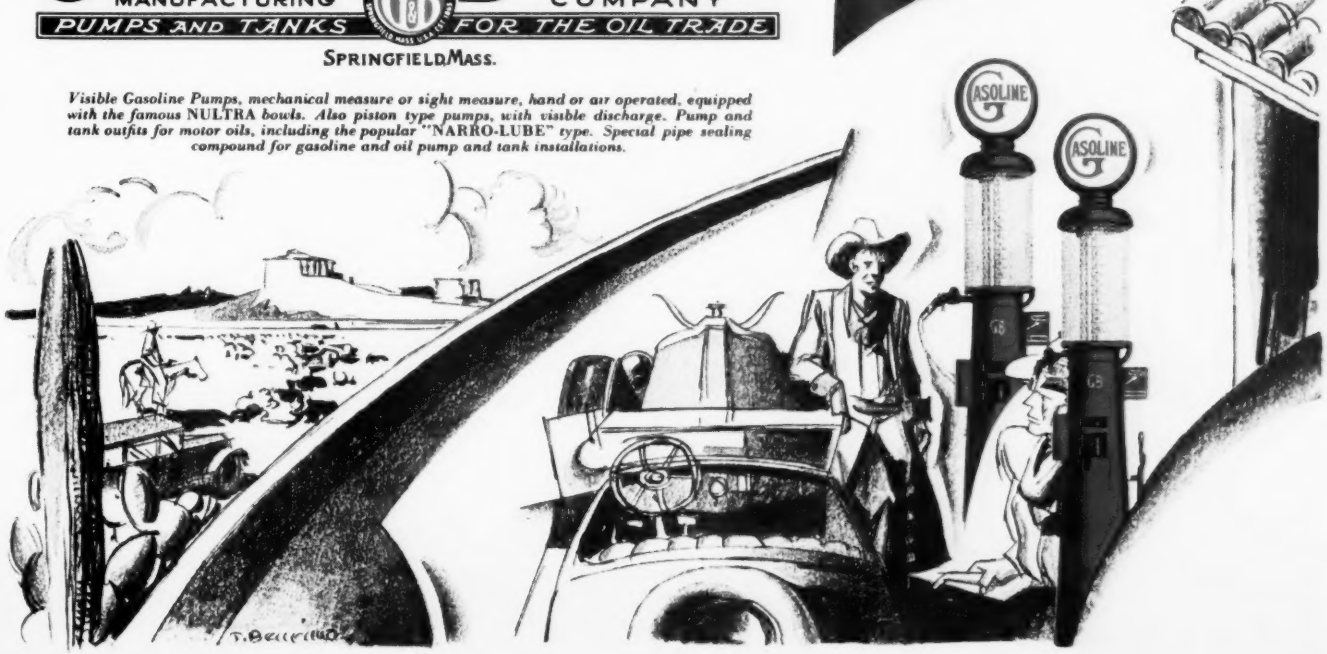
Old Sol can't tan the gasoline that stands in a NULTRA glass bowl. NULTRA glass—a special formula glass—sorts out and repels the actinic rays of the Sun that discolor gasoline and make it "sunburn." NULTRA bowls hold up the fuel to the admiration of motorists—show it in all its water-white sparkle and brilliance.

Make comparative tests yourself, as so many have done—let the Saybolt chromometer tell the story. The story with but one ending—that NULTRA glass bowls on G & B pumps keep any gasoline looking its best and make it sell.

NULTRA glass bowls are available *only* on Gilbert & Barker visible pumps. You pay no more for them than you would for pumps with ordinary glass bowls. Write for Bulletins T-176 and T-179 (describing the G&B sight measure and mechanical measure visible pumps) and also ask for data on NULTRA.

GILBERT AND BARKER
MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD, MASS.

Visible Gasoline Pumps, mechanical measure or sight measure, hand or air operated, equipped with the famous NULTRA *bowls. Also piston type pumps, with visible discharge. Pump and tank outfits for motor oils, including the popular* "NARRO-LUBE" *type. Special pipe sealing compound for gasoline and oil pump and tank installations.*



Now Bennett Enters the Field with the LOW PRICED "R"

Another Example of How Research Pays!

Years of research and experiment by Bennett have produced in "RAM" a one-man, entirely manual operated, carryable, compact device that attaches easily to greasing connections at all chassis points and lubricates quickly, positively and with least exertion on the part of the operator; and gives ideal service at lowest servicing cost.

Thorough Chassis Lubrication AT LOWEST INVESTMENT

"RAM"

One-Man Hand-Operated Repeating HIGH-PRESSURE CHASSIS LUBRICATOR

IN the new "RAM" chassis lubricator Bennett has combined the service advantages of air-pressure systems with the economy and simplicity of portable hand-operated outfits. A single stroke of the charging plunger loads "RAM" for greasing an entire chassis. Pressure booster at discharge end multiplies penetrating power of each fresh grease injection. Genuine Alemite flexible coupling and special fittings for Zerk jobs enables "RAM" to service cars easily and properly. Hose and genuine Alemite and Zerk booster are obtainable from Bennett or from any Alemite Distributor.

for ALEMITE and ZERK!

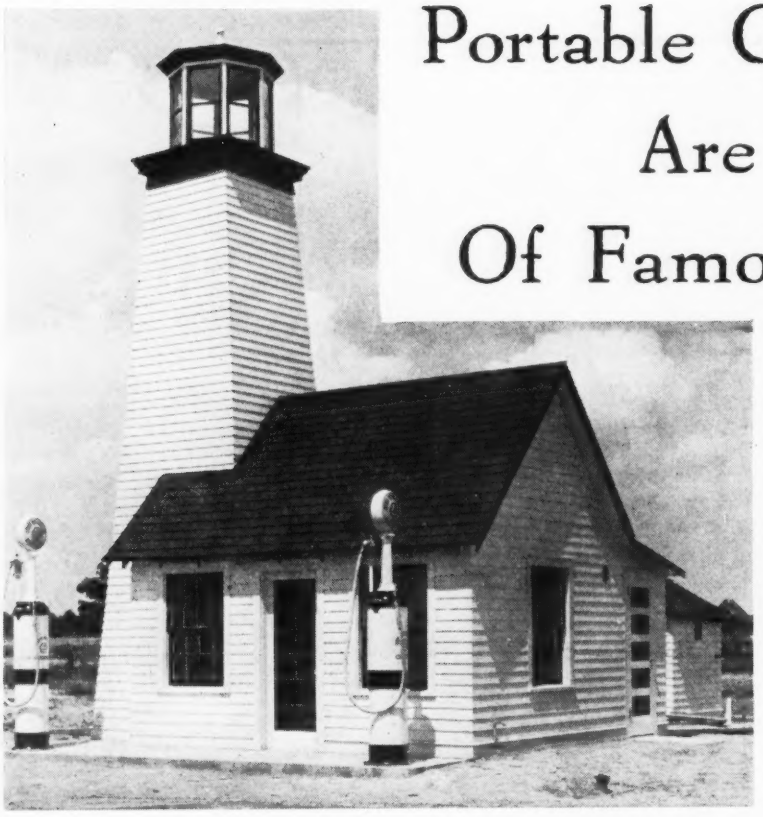
Write for "RAM" Bulletin

[Use of Alemite and Zerk Fittings Authorized by Bassick Mfg. Company]

Bennett Pumps Corporation
HIGH-PRESSURE
Hand-Operated One-Man
RAM
for Chassis Greasing
Muskegon, Michigan.

"Symbol of Quality"

Portable Country Stations Are Replicas Of Famous Lighthouse



One of a chain of five lighthouse stations Crew Levick Co. built this year in Delaware

PHILADELPHIA, Sept. 21

PORTABILITY is a feature of five service stations recently built by the Crew Levick Co., Cities Service subsidiary, in Delaware. Although the stations have all the features of the usual service station the buildings may be moved to any other location and everything salvaged except the concrete slabs on which they rest and the water wells that were sunk at each station.

The stations are built of wood and modeled after the Henlopen lighthouse, a historic beacon which first shone in 1725 on the Delaware coast and which fell into the sea in 1926 after citizens of the state had endeavored to save it as a monument.

The station building is 12 by 20 feet including base of tower. There are two toilets in a lean-to at the rear with outside entrances. The salesroom extends under the tower which is wholly ornamental. The tower is surmounted by a flashing blinker light. The tower is 25 feet from the ground to the base of the light, which is four feet high. With the roof and finial the overall height of the tower is slightly more than 30 feet.

The stations are at DuPont highway north of Dover; DuPont highway and Milford Neck road; Harrington road at Woodside; Harrington road at Paradise valley, and Marydel road and Pearson's corner.

They are built on 100 by 150-foot tracts leased at a nominal rental from farmers. They cost approximately $3000 each outside the gasoline and oil handling equipment but with the grading and installation of the sanitary system.

The sanitary system consists of two enameled lavatories and two antifreeze toilets, which are connected to septic tanks. The tanks are salvagable. Where electricity was available a 2-inch well was put in and pressure supplied by a Fairbanks-Morse country water system. Where no electricity was available a 6-inch well was sunk. A Delco unit was put in to supply power for lighting and the air compressor. A National Utilities air operated pumping unit was put on the well.

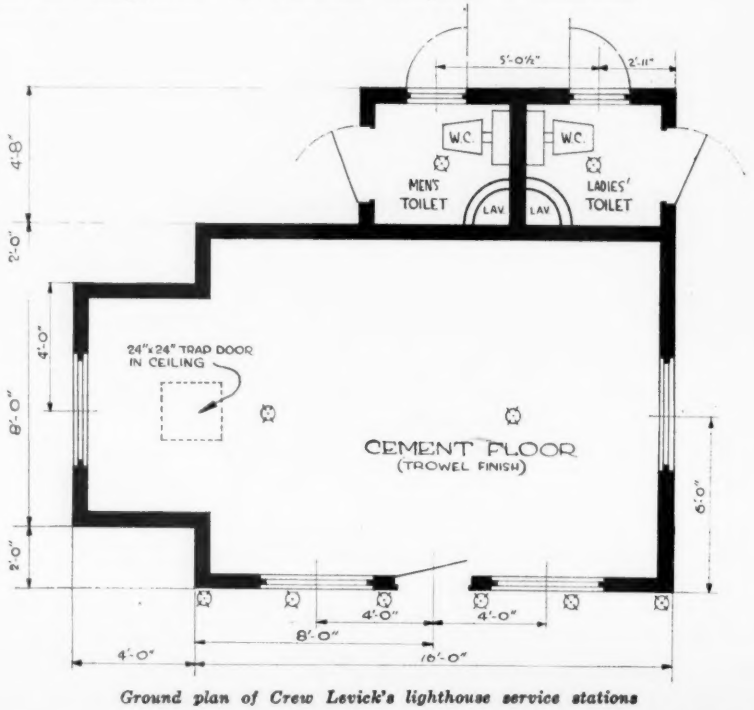
Each station has two gasoline pumps and an oil and grease rack. The stations are supplied by tank wagon from the Crew Levick's bulk plant at Dover which was enlarged to handle the increased business the stations created.

The chain is operated under Crew Levick supervision, some of the operators being owners of the land on which the stations are built. When the owner could not operate the station other responsible men were sought.

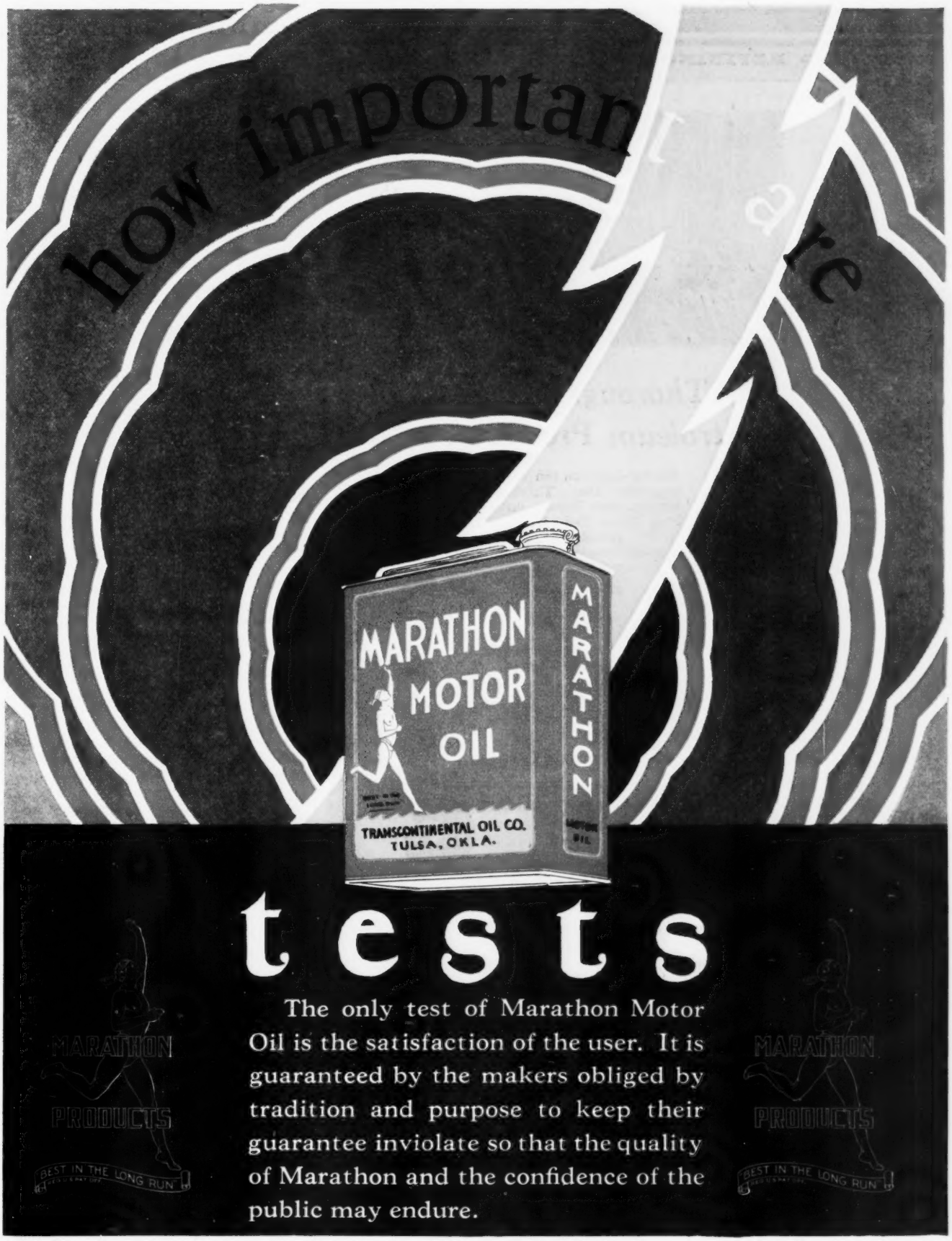
These operators receive no base pay but get a commission on the gasoline and oil sold, a certain margin per gallon. They are permitted to sell farm products, automobile supplies, and other things that might attract motorists.

All profit from the sidelines goes to the operator. There is ample space in the salesroom for a considerable stock of sidelines after stocking the station with oils and greases.

Crew Levick Co. has received much favorable comment from tourists and citizens of the state. Dover and Wilmington newspapers carried stories of the building of the chain with the historical tie-up with the Henlopen Light and even complimented the company in editorials.



Ground plan of Crew Levick's lighthouse service stations



tests

The only test of Marathon Motor Oil is the satisfaction of the user. It is guaranteed by the makers obliged by tradition and purpose to keep their guarantee inviolate so that the quality of Marathon and the confidence of the public may endure.

MARATHON PRODUCTS
BEST IN THE LONG RUN

MARATHON PRODUCTS
BEST IN THE LONG RUN

TRANSCONTINENTAL OIL CO.

PRODUCERS-REFINERS AND MARKETERS OF MARATHON PETROLEUM PRODUCTS ···· GENERAL OFFICES · RITZ BUILDING · TULSA, OKLA.

Division Offices:

Atlanta Chicago Fort Worth Oklahoma City Little Rock Sioux City

Refineries:

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Warehouses at convenient shipping points

PRODUCING REFINING TRANSPORTING MARKETING

The Thoroughbred of Petroleum Products

Among dogs you can easily distinguish the Thoroughbred hunter, race horses unmistakingly show their heritage and among petroleum products Cushing stands out, as the result of super refining skill.

A wire or letter will bring quotations.

58-60 U. S. Motor Gasoline
64-66-375 E. P. Aviation
41-43 W. W. Kerosene
36-38 Straw Distillate
32-36 Gas Oil Uncracked
22-26 Fuel Oil (Cushing or
24-26 Fuel Oil Blackwell)

Once a motorist has made an acquaintance with Cushing Petroleum Products, he is listed as an old friend, the reason, Cushing Products among Jobbers and Dealers are known as profit builders, that hold, customers and make new ones.

Why not let Cushing demonstrate the line of quality petroleum products that are the surest business builders known *—drop a line now—before you forget.*

General Offices—CUSHING, OKALHOMA

CUSHING

Refining & Gasoline Co.

Refineries At CUSHING & BLACKWELL, OKLAHOMA

USED GAS PUMPS

PISTON AND VISIBLES—VARIOUS MAKES

ALWAYS ON HAND

Prices very Reasonable

Address H. W. Vogt

MILWAUKEE TANK WORKS

Milwaukee, Wis.

Curb Sought on 'Gas' Tax Evasions

CLEVELAND, Sept. 22

ELIMINATION of unfair practices in evading the state gasoline tax will be sought by Ohio marketers in two proposed amendments to the gasoline tax law to come before the Ohio general assembly in January.

One amendment would empower the state tax commission to determine the financial responsibility of any dealer in tax free gasoline before receiving or filing his certificate to do business. If the dealer's financial ability was found wanting a surety bond would be demanded. Evasion of filing a certificate by any one dealing in tax free gasoline would make the dealer criminally liable.

Dealers who have made fraudulent reports or who have failed to pay their taxes would come under the ban and their certificates could be cancelled.

The second amendment would set aside a specific sum ($50,000 was proposed) from the gasoline tax fund for the proper enforcement of the law. This measure would eliminate the situation of 1927 when the governor vetoed such an item in the general appropriation bill, hampering the work of the commission in investigating improper or questionable returns on gasoline sales.

A third proposed amendment is that of a 3 per cent allowance for shrinkage. This would amount to about $750,000 based on the estimated yearly income of $25,000,000 from Ohio's 3-cent gasoline tax.

These proposed amendments and other items of legislative interest were presented to members of the Ohio Petroleum Marketers Association at its Toledo convention by Hubert B. Fuller, attorney for the association, and a member of the law firm of Chamberlin, Marty & Fuller, Cleveland.

Mr. Fuller warned against replying to a recent letter issued by the Ohio Good Roads Federation, Columbus, asking oil companies for information as to bookkeeping costs in handling the gasoline tax, as to total amount of losses sustained through dealers not reimbursing the company for the 3-cent gasoline tax, and as to what other states allow for shrinkage.

"I do not like to impute bad faith to any man but I cannot escape the observation that the man who signed this letter was one of the leading proponents both of the original gasoline tax law and of the amendment which increased this tax 50 per cent," said Mr. Fuller.

Ohio's gasoline tax amounts to $25,000,000 annually, making this the leading state, so Mr. Fuller estimated. A 3 per cent shrinkage allowance would amount to $750,000.

"I am not certain that we have

made a record in miles of roads built but I do know we have made an outstanding record in dollars spent," he said.

The state tax commission's decision would be final in the case of a dealer's certificate being cancelled under the proposed amendment as to a dealer's financial ability. The dealer would be given notice of a hearing on his case and would be given a hearing. Recourse could be had by the dealer to a review in common pleas court at Columbus, with the action of the tax commission deemed prima facie evidence.

"It is the opinion of your directors that amendments of this character would almost entirely eradicate cheating under the gasoline tax law," said Mr. Fuller.

Other legislative matters which Mr. Fuller warned of were the "Sunday blue sky" laws, and occupational taxes. An annual tax of $100 on every oil station in Cincinnati has been declared constitutional, he said.

Smaller cities in the state are plagued with the Sunday blue sky laws. Movie house operators caught in the blue sky net have attempted to pull in other lines of business. At Martins Ferry those charged with this offense have been bound over to the grand jury. No convictions have been obtained as yet in any community as far as he knew, Mr. Fuller said.

Members were urged to become acquainted wth general assembly candidates in their district, as a protection against the wiles of politicians in the coming legislative season when oil companies will be fair prey.

"The average member is suspicious of every bill which comes before the legislature and of every person who interviews him either for or against any measure, but he does trust his friends at home," Mr. Fuller said. "Therefore, whenever we request your assistance we shall expect you to act promptly, otherwise you fail in your duty to yourself and to your industry."

New N. G. A. Director

TULSA, Sept. 21.—E. A. Titsworth, general auditor of the Prairie Oil & Gas Co., has been elected a member of the board of directors of the Natural Gasoline Association of America, according to an announcement by A. V. Bourque, secretary of the association. Mr. Titsworth succeeds W. G. Clute, former general auditor of the Prairie, who resigned.

Empire Transfers Two Men

TULSA, Sept. 22.—Curtis O. Bailey, superintendent of the Cushing plant of the Empire Oil & Refining Co., has been transferred to Gainesville, Texas, as superintendent of the larger plant at that point. He succeeds E. H. Roy, who has been transferred to the general offices at Tulsa for special work. Oscar Mann has been placed in charge of the Cushing plant as acting superintendent.

Consider "DAYTONS" When You Are Considering Compressors

You want compressors of all-purpose character—You want Air Compressors that will require few repairs—You want a type that will give uninterrupted service—

Get the kind of compressor that will give you all the air you need for tires, and have enough left over to care for lifts, pneumatic greasing and all the new appliances in your station.

In Other Words—Get a Dayton "G"

Made in several sizes from the "G-1" with a 33 gallon tank and 2¼ cub. ft. air capacity up to the "G-8" with 60 gallon tank and 9¼ cub. ft. capacity. Five intermediate types in the "G" series, some for truck and bus tire work with enough air capacity to do all your other compressed air work.

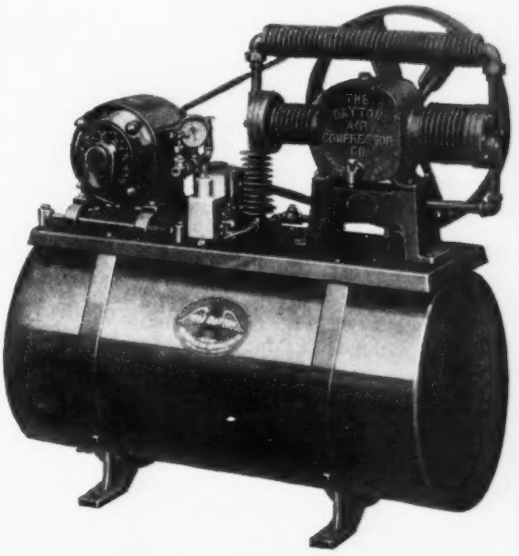
The DAYTON "G"

is built without any of the trouble makers found in many other makes of Two-Stage Compressors.

NO

Connecting Rods—
Crosshead Pins—
Cotter Pins—
Bolts—

That's why they give uninterrupted service for years.



"Daytons" are the only two-stage compressors in the world which are built without these trouble-makers.

Get a "G" Bulletin

DAYTON AIR COMPRESSORS

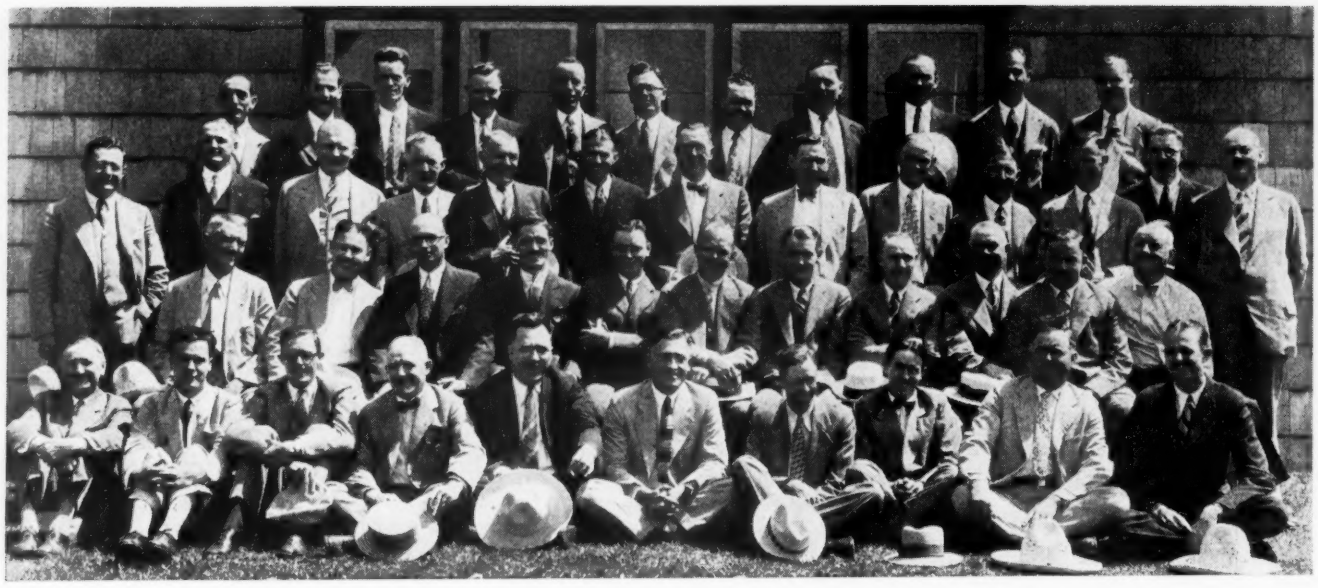
425 Valley St. **Dayton, Ohio**

Gasoline And Other Motor Fuels

by Ellis and Meigs, is a book which gives a complete survey of the field and a description of practically every process of making gasoline and most other motor fuels of promise or prominence.

The price of the book is $10. Just send us your check and we will mail a copy of it to you.

National Petroleum News. 1213 W. Third St., Cleveland, Ohio



Salesmen of Bennett Pumps Corp., Muskegon, Mich., who conv ened in third annual conference at Muskegon on Aug. 13 to 16

New Lube Oil Tank Designed to Help Lube Sales

MUSKEGON, Mich., Sept. 22.—New lubricating oil merchandising ideas designed to help the oil company increase its sales of oils, were developed at the third annual conference of Bennett Pumps Corp. salesmen in Muskegon Aug. 13 to 16. Muskegon is the headquarters of the company.

The new Bennett product, the "Car-Bar" was displayed. This is a completely covered, multiple tank, consolidated lubricating oil dispensing unit for service at car-side.

It is claimed that during the first 20 days of August when the merchandising value of this car was being tested out by Abeel Bros., Inc., oil marketers of Chattanooga, sales of lube oil increased 30 per cent over the last 20 days of July, the company putting the "Car-Bar" into service on Aug. 1.

The first day's program of the conference was devoted primarily to addresses concerning the production department and engineering developments. Reports and discussions of the various departments were heard the second day, while the third was devoted entirely to sales talks.

A banquet at the Occidental Hotel closed the convention. During the banquet prizes for the best sales papers were presented, as well as prizes for the winners in the golf tournament which was played the first two days.

Texans Were—No They Weren't Short Measured on Gas

HOUSTON, Sept. 21

A STATE department report charging that Texas motorists had paid for 18,532,000 gallons of gasoline they did not receive in the last 12 months has been challenged by M. L. Lewis, chief of the Houston city department of weights and measures.

Mr. Lewis said he thought the methods used by the state weights and measures men were not "fair," adding:

"We test the pumps here every day and we do not find the shortages they claim to find. Why don't they drive up to the station with a five gallon can and draw it full of gasoline to see if the pumps are short? That's the way we do."

Mr. Lewis detailed the methods of Chief Clerk B. A. Stovall of the state department, who headed the Houston test work several months ago.

"His men made the survey, Mr. Stovall didn't go out at all," said Mr. Lewis. "They bought an old car and put a dummy tank in it. The men would drive up to a filling station and buy five gallons of 'gas.' Then they would drive four or five blocks away and measure it. They would take the dummy tank out and empty the 'gas' in a five-gallon can. You know that is no fair way to measure 'gas.'

"They would lose some of the gasoline in changing from the tank to the can, some would spill out and some would evaporate.

"We went right behind the weights and measures men and took measures where they said they had found big shortages. Our results did not tally with theirs at all.

"We carried a standard five-gallon can and went to the station and bought the 'gas.' We measured it right before the eyes of the station operators and proprietors. We found very few shortages and the pumps we did find short just lacked a little of coming up to the required measure. As many pumps gave above measure as gave below measure. The few shortages we found were so small that they were not noticeable."

According to the state department, 304 of the 374 pumps tested in its investigation gave short measures, distributed as follows:

Houston, 500 gallons bought, three per cent short; Galveston, 200 gallons, 5.49 per cent short; Waco, 200 gallons, 3.11 per cent short; Fort Worth, 300 gallons, 2.79 per cent short; Austin, 200 gallons, 2.35 per cent short; Taylor, 40 gallons, 2.28 per cent short; Dallas, 260 gallons, 2.16 per cent short; Beaumont, 180 gallons, 1.86 per cent short.

Commissioner George B. Terrell of the agricultural department under which the state weights and measures work comes, said "the comptroller's records show that 607,677,000 gallons of gasoline were sold in Texas in the test period. Deducting the 3.05 per cent shortage we found to be the average, it is apparent that in the last year Texans bought 18,532,000 gallons which they never received and which cost, at 18 cents a gallon, a total of $3,182,000."

A bill is being prepared for presentation at the Forty-first legislature, according to Terrell, which would put all filling stations in Texas under state regulation.

100 Cents' Worth OF PUMP VALUE in every Dollar

You can be SURE of this every time you invest in one of the sturdily built, highly attractive

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TEN Gallon Visible Container, eye measure Pump. Wet or dry hose, suitable for curb locations or drive-in filling stations.

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The famous 12-10 Whirlwind Pumping Unit *(12 oscillating strokes to pump 10 gallons) is built into every "Economee" model. The Unit offers you:*

(1) Piston Ring Construction . . . no more leathers.

(2) Exceptional Speed and Ease of Operation.

(3) Five-Year Golden Guarantee, protecting you against unsatisfactory operation due to wear or breakage of parts.

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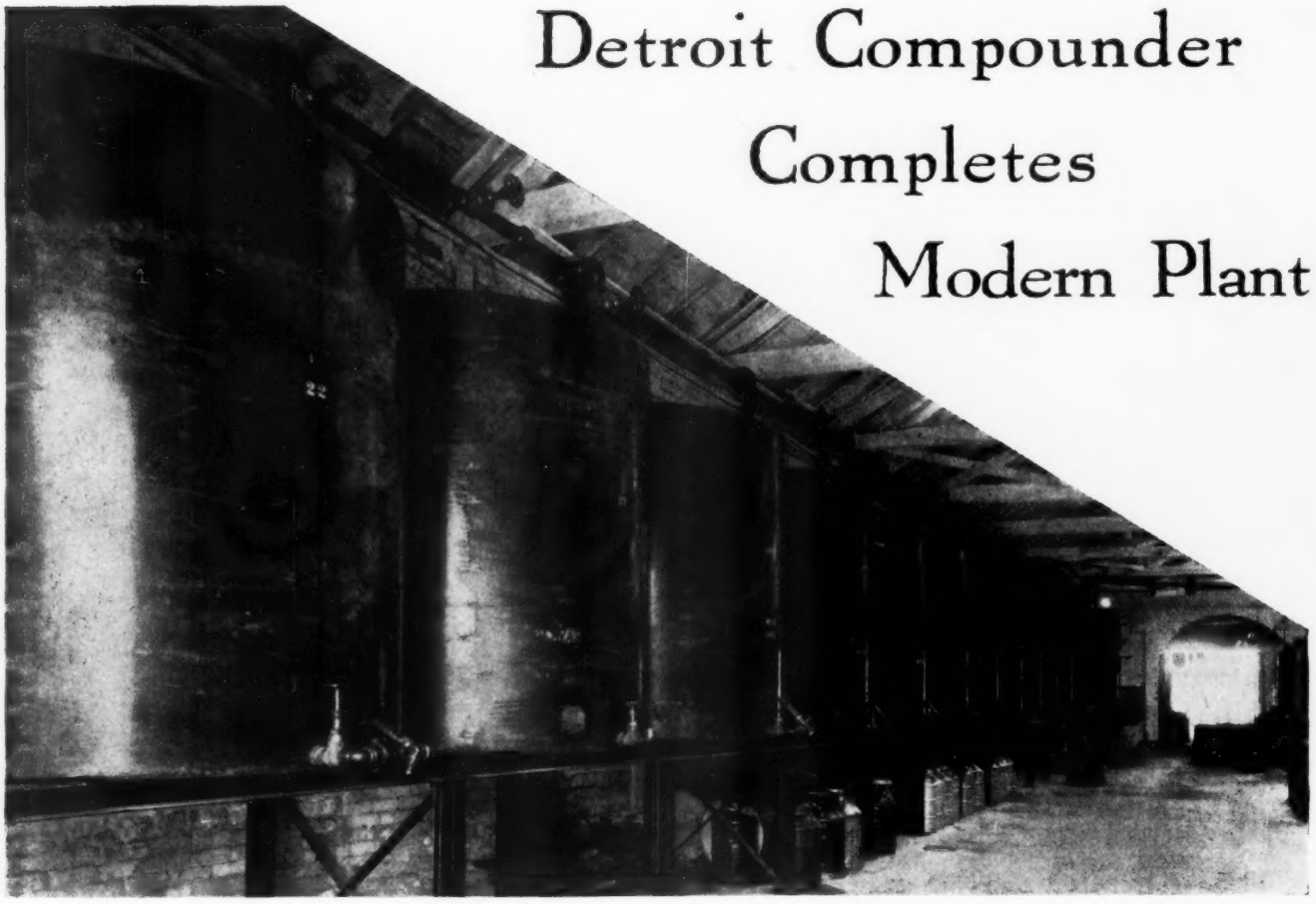
The AMERICAN OIL PUMP & TANK CO.
1713 DALTON STREET CINCINNATI, OHIO

Detroit Compounder Completes Modern Plant



Battery of tanks in the compounding plant of the Mich-I-Penn Oil & Grease Co., Detroit

CLEVELAND, Sept. 21

THE Mich-I-Penn Oil & Grease Co., of Detroit has completed a modern compounding plant for the manufacture of motor oils, greases, cutting oils and other special products. The company collaborated with the engineers of the Sharpsville Boiler Works Co., in the design and layout of the plant.

All pumps and other apparatus are direct driven by motors so as to reduce the cost of current consumed to a minimum. Steam for heating building, tanks and compounding apparatus is purchased from a nearby source so it was not necessary to install a steam plant in connection with the compounding works.

The layout consists of the following:

One 3000-gallon vertical tank for steam refined oil.

One 3000-gallon vertical tank for Ford Oil.

One 3000-gallon vertical tank for paraffin oil.

Two 3000-gallon vertical tanks for E stock.

One additional tank of the same size for future requirements.

One 8500-gallon vertical tank for Pennsylvania bright stock.

One 8500-gallon vertical tank for zero oil.

Two 8500-gallon vertical tanks for neutral oil.

All of the above tanks are arranged along one side of the building. In other words, the raw stocks are kept entirely distinct and separate from the compounded oils. On the other side of the building are thirteen 1000-gallon vertical tanks for compounded lube oils and alongside of these tanks is the compounding tank.

Heating coils are provided in the tanks for the steam refined oil, the E stock and Pennsylvania bright oil.

The finished oil storage tanks are mounted on steel supports so that the oil can be drained from all of these tanks by gravity.

There are three rotary pumps used one for handling the heavy oils and one for the light oils. These pumps unload the oil from tank cars in the raw storage tanks and by means of a manifold the same pumps are used for transferring the oil from the raw storage to the compounding tank. After the oil is compounded it is transferred by means of the third pump into the lubricating oil storage tanks and from these tanks it is drawn into barrels and other containers.

The compounding tanks are provided with motor driven agitators. The compounding tanks are also equipped with large steam coils in order that the oil can be brought up to the proper temperature in a minimum length of time.

All pumps are provided with bypass valves in order to protect the pumps and motors from overloading in the event that a valve on the line is closed while the pump is operating.

In order to avoid the use of very large motors and pumps the suction and discharge lines were increased in size, thus reducing friction to a minimum. The regular operating speed of the pumps is cut down and additional clearance is provided in the working parts so that they will handle the lube oil for which they are intended to the best advantage.

Computing scales are provided for weighing drums and automatically figuring contents.

The plant is equipped with an up-to-date laboratory so that all products can be quickly and conveniently tested and analyzed.

The new building also houses a modern office.

Officers of the Mich-I-Penn Oil & Grease Co. are: George C. Bohnsack, president; Clarence W. Bicking, vice president; Louis F. Shields, secretary; Earl F. Fouts, treasurer and John Promfret, sales manager.

Driveways that say "drive-in"

FILLING station driveways that are washed regularly with Oakite invite the motorist to drive in and "fill up". Oakite cleaning removes oil and grease accumulations and keeps driveways, as well as pumps and other equipment spick and span. It takes but little time and effort, too.

Let our Service Man show you how remarkably easy it is to tidy up with Oakite. Get his help on any cleaning job you may have. Write, asking to have him call. No obligation.

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of the United States and Canada.

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We manufacture the simplest to the most elaborate Stations. Put your own individuality in your Filling Stations—Let us help you work this out.

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District Sales Offices
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Houston New Orleans Atlanta Tampa

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Cylinder Engine Cordage

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"NUFORD" Motor Oil

FOR THE NEW MODEL "A" FORDS

ANOTHER ACHIEVEMENT BY DEEPWATER OILS REFINERY

Every day sees an increasing number of new (Model "A") Fords on the streets and highways and they are "new" not only in design but in lubrication requirements.

Realizing the necessity for a special motor oil to lubricate this new type car during the Winter season, the Deepwater Oil Refineries, Inc., months ago began work toward perfecting a lubricant that would in every way meet the specifications required by all authorized Ford dealers.

Deepwater's NUFORD Motor Oil is the successful culmination of these efforts. It is a lubricant adaptable to extreme cold weather motor operation. It will put an end to the inactive and unprofitable winter season in the filling station business. No more frozen crankcases, exhausted batteries, towing and other winter inconveniences.

NUFORD Motor Oil is refined by an exclusive vacuum process and thoroughly filtered. It is free from carbon, sediment and other impurities. It is guaranteed to meet in every respect all points of Winter specifications as published by the Ford Motor Company, Detroit, Michigan, and as recommended in the Ford manual for the lubrication of the Ford Model "A" motor.

DEEPWATER OIL

HOUSTON,

Guaranteed to Meet All Points of Winter Specifications Required By Every Ford Dealer.

READ THESE SPECIFICATIONS

NUFORD Motor Oil Specifications:

Color	5
Flash open cup	370° F. minimum
Fire	420° F. minimum
Viscosity @ 100	400 maximum
Viscosity @ 210	50 minimum
Cold Set	Zero

There are no restrictions in the sale of this product. It can be sold by the jobbing trade under the jobber's own trade brand or we will authorize the use of NUFORD Motor Oil if desired. Shipments in tank cars, compartment cars or carload drums.

Now is the time to stock this product. Wire or write immediately for prices.

REFINERIES, Inc.

TEXAS

Cost of Heat, Not Cost of Fuel Used Is What Refiners Should Know

CLEVELAND, Sept. 21

IT ALWAYS takes exactly the same number of heat units to run down a barrel of a given crude to a given bottom and the number is the same in one refinery as in another. The only opportunity for saving lies not in doing the actual work required with fewer heat units but in generating fewer heat units to be wasted.

Cost figures expressed in terms of cost of raising 1000 pounds of steam do not mean anything unless it is known whether it is saturated or superheated steam, or how many degrees of superheat it carries, because it is the cost of raising a certain number of heat units which indicates efficiency or the reverse.

The newest equipment for handling oil refining efficiency is valuable but that does not mean that equipment should be scrapped merely because it is old. Frequently slight changes on old equipment, costing relatively little, will bring very great increases in efficiency.

Desirability of installing expensive equipment depends upon how soon it will pay out the investment.

These are some of the points emphasized by Herbert A. Ross in his paper, "The Refinery Heat Machine, Old and New," read before the fall meeting of the National Petroleum Association at Atlantic City, Sept. 19.

He stressed the fact that the thing of vital importance in any heat analysis is the one big problem of cost. In this connection he said:

"It costs money to generate heat!
"It costs money to conserve heat!
"It costs money to utilize heat!
"It costs money to reclaim heat!

"If we invest a dollar to improve any of these conditions, the improvement must return the dollar we spend within a reasonable time, in order to avoid investment loss.

"As an illustration, if Refinery A consumes 100 pounds of coal at a cost of $4 per ton laid down, to fractionate and finish a barrel of crude, the fuel cost will be 20 cents, based on the crude run. We will say that Refinery B only uses 50 pounds of coal to process this same crude.

"Then the fuel cost in Refinery A is 10 cents more per barrel than in B. Refinery B, however, has new boiler and still equipment and we would naturally expect more efficient results from this modern plant than we would from the older one.

"We therefore assume that the modern equipment affords a distinct manufacturing advantage. Such a surmise might be incorrect, for we frequently find that regardless of the old equipment handicap, a refinery is able in some way or other to hold a place in the competition for business and make a profit, and we wonder why. The following may afford a reasonable and logical answer.

"The cost of fuel is not the cost of heat, any more than the cost of crude is the cost of finished product. To either of these basic materials must be added the cost of process, represented by labor, replacement, depreciation, obsolescence, interest, etc.

"We actually process fuel to manufacture heat; now what about the quality of the heat? We say that it costs 40 cents to produce 1000 pounds of steam. If we were asked what kind or quality of steam, we might say saturated or superheated as the case might be, and yet not answer the question.

"What we must know is how many calories or B.t.u. the steam contains. Dependent upon the pressure and superheat, this 1000 pounds of steam may contain 1,250,000 or it could hold 1,500,000 or more heat units. The cost, then, of a given quantity of steam can mean but little, for it is nothing but a vapor that carries or transfers heat.

"Here then are the two central thoughts of the refinery heat machine problem. First, the cost to produce the heat unit and then the cost to conserve and utilize it, which we will now consider.

"It was stated that fuel cost in Refinery A was 10 cents more per barrel than Refinery B. It does not follow, however, that the units of heat produced cost more just because the fuel cost was greater.

"Admitting that A's equipment is old, did you ever stop to consider that his investment in heat machines has been either directly or automatically charged off years ago and that now only the expense of a few simple repairs is needed to continue the useful life of the machine? Assume that the investment has not yet paid out, have you given thought to the fact that this original investment in heat equipment did not cost one half of what it would to replace it today?

"We have hundreds of cylindrical stills that are producing premium lubricants by the batch or continuous method. Some of these stills are set over modern stoker-fired furnaces and are equipped with vapor heat exchangers. The rate of heat transfer in this type of still has also been greatly improved by mechanically increasing the circulation of the oil. The net result of these improvements has increased the overall heat efficiency of the units 100 per cent and more, and in this accomplishment heavy investment has been avoided.

"The modern heat machine in Refinery B may be a most efficient apparatus from a mechanical standpoint and yet it may not produce cheap units of heat.

"Perhaps Refinery B also has a tubular oil heater and fractionating column, or modification of the same, wherewith to process the crude. This fundamentally is also a heat machine. Probably such a process of fractionation will not use 30 per cent of the steam nor 50 per cent of the fuel required to operate the cylindrical still. We must also admit that better yields and improved quality, especially of the lubricating fractions, are reported as being an accomplished fact.

"The modern tubular heater requires that the flow of heat to the tubes, and the velocity of oil flow within them must always be in phase with each other for given products, therefore to keep these values constant it is necessary to burn oil, gas or pulverized fuel. Gas is expensive. Oil is also expensive, and in addition usually requires steam for atomization. It costs money for power and equipment to pulverize fuel. It may be true that as an offset against the cost of such fuels we avoid the added expense of labor to burn coal, but can we balance the heat cost in this manner?

"Now for the final thought in this connection. Modern fractionating equipment requires a heavy investment, and the question is, how soon must this money be returned? Dependent upon the answer will be found the cost of the heat units produced and utilized. But who can answer such a question at the present time or who

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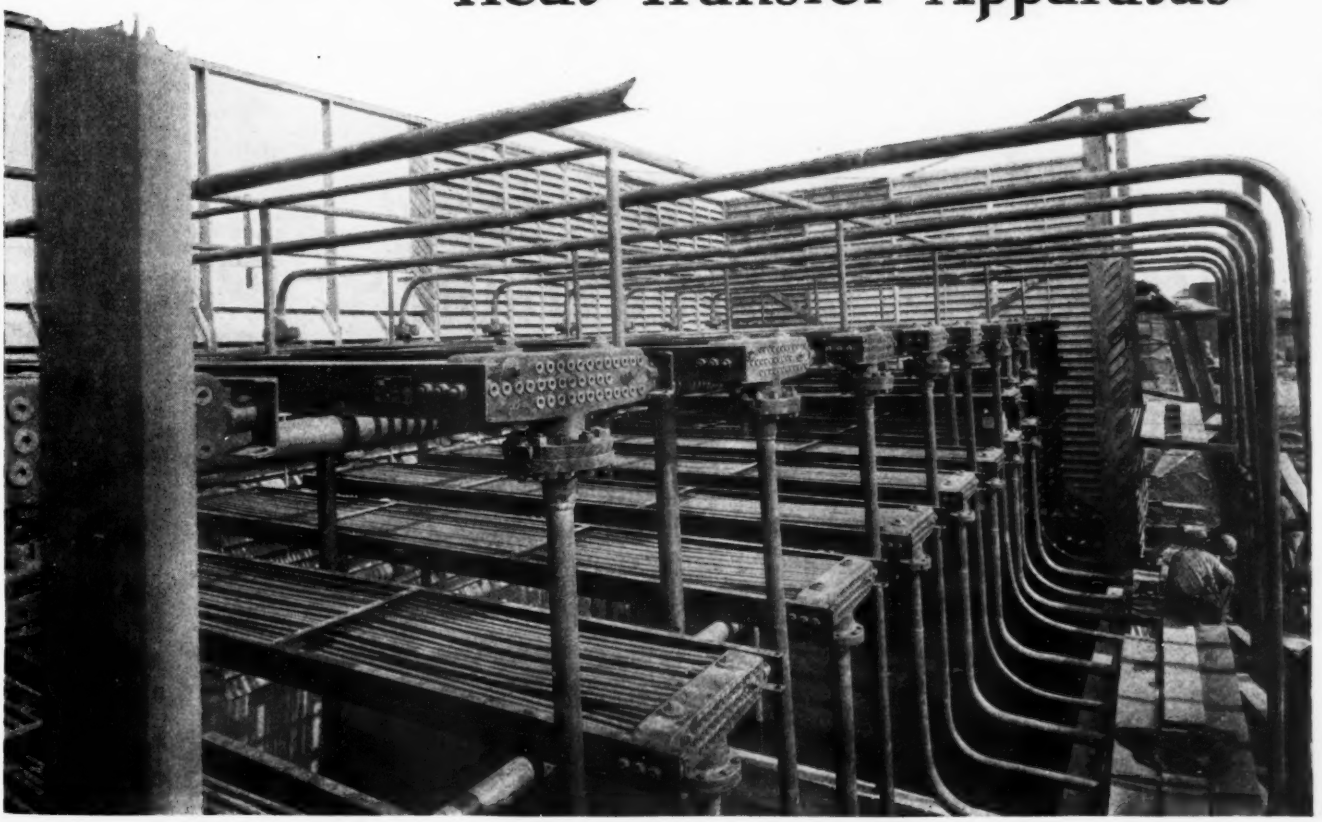
Heat Transfer Apparatus



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knows whether it will be one or 10 years before the machine is superseded by a better one.

"The refinery of the future may hydrogenate the raw coal and combine the product with its crude oil. The non-condensable gases and coal residue may then be used to produce cheap steam and hot gases for fractionating and processing purposes, and in all probability the entire process from first to last will be done continuously in the one heat machine. How about heat economy with such an apparatus as this?

"I would not have you understand that saving fuel alone is the remedy that will afford profit by reduction of your manufacturing costs, although it may represent from 20 to 30 per cent of the total amount. What I will say, however, is that reducing your cost to produce heat from the raw fuel and then utilizing it properly will assist to a remedy.

"No criticism of the modern heat machine, whether boilers, stills, or other heat apparatus, has been attempted in this discussion, either with the intent or purpose of disparagement, for these machines are new apparently affording remarkable economies.

"Assuredly the time has not yet arrived when we are forced to scrap all of our old heat machines for new ones. Pending such a critical situation as that, wouldn't you consider it advisable and also profitable to continue your efforts to still further improve the present heat efficiencies of your old machines by a modest expenditure of money?

"In conclusion, I desire to offer a few suggestions relative to the heat machine that may be of assistance in your choice of the old or the new.

"What do you now pay—and what can you afford to pay—for a million heat units wherewith to refine your oil or produce your steam? Do they now cost you 40 cents or 60 cents per million? How many do you produce per barrel of crude or the equivalent you run, and what percentage of those produced do you utilize? Remember please, we are not asking for the cost of fuel; we want the cost of heat. If proper records have not been maintained, it will be a difficult matter to answer the questions correctly or intelligently, and yet the profitable conduct of your plant is largely dependent upon this information.

"One of the most active committees of your association is the department of manufacture. Has it ever occurred to you that this committee might be able to assist you in the solution of some of your heat problems? Under their supervision, a 3-year study of refinery heat machines has been conducted in a number of plants, and you will find a summary of this work in the current annual report.

"This committee now has on file in the engineer's office hundreds of confidential records pertaining to the heat problems and collateral research of not only the small refinery, but the large one as well. In addition to this, related data developed by research committees of several technical societies are regularly received and filed. This is available to you through your manufacturing committee also."

The Price of Prosperity? Hold Production to Demand

By Joseph E. Pogue*

Delivered before the National Petroleum Association, Atlantic City, Sept. 19

THE price of prosperity in the petroleum industry is the application of sound economic principles to the conduct of the oil business. Have sound economic principles been applied to the conduct of the oil business? In reply, one may ask: Is the oil business on a firm basis of prosperity?

The gasoline manufacturing branch of the petroleum industry will have a prosperous year in 1928. Why? Because the price of gasoline remained depressed for 12 months, the output of gasoline in response to these low prices was curtailed and kept so, and stocks of gasoline were reduced to very low levels. The last phrase may be repeated: *and stocks of gasoline were reduced to very low levels.* Moreover, no one came along and prematurely boosted the price of gasoline.

Accordingly, the spring of 1928 was entered with gasoline stocks 20 per cent below estimated normal and with a level of output, taken in conjunction with the limited volume of stocks, inadequate to meet the requirements shaping up ahead. Under such circumstances, gasoline prices *had* to advance. The price movement of gasoline during the first 6 months of 1928 was a true response to economic conditions, and, in your speaker's opinion, one of the soundest price rises witnessed in the petroleum industry for some time.

Unfortunately, the petroleum refiners of the country, now optimistic, are doing their best to expand their operations to the point where the upward price trend so laboriously established last winter will be reversed. One is reluctantly faced with the apprehension that the refiners are now failing to consider the price demanded for prosperity.

The crude oil producers will not have a prosperous year in 1928. And this will be the case despite the exercise of considerable restraint in holding supply far below the possible output. Why? Because the supply of crude oil was not contracted and kept curtailed sufficiently to reduce the stocks of crude oil on hand to reasonable levels. Moreover, someone came along and prematurely boosted the price of crude. The 10 largest oil companies, controlling the bulk of the crude oil in storage, could bring about a sound crude oil situation by reducing their production and purchases of oil below their respective requirements sufficiently to lower their stocks of crude oil, say, 100 million barrels.

Are these companies willing to adopt such a drastic policy with its unfavorable immediate, but salutary ultimate, effects? They have given no indication of doing so.

Instead of a policy of once-for-all liquidation of an unsound crude oil situation, the petroleum industry has elected instead to adopt a modified form of rationalization, attempting to hold supply to the requirements of demand, but taking no steps to define "demand" or effect a reduction in stocks. This modified form of rationalization is widely hailed as an important constructive step for the industry; but it may not be amiss to point out the possible dangers in the inexperienced application of new economic forces.

No criticism can be directed to the soundness of rationalization as an operating policy for an industry.

Rationalization probably constitutes one of the major economic advances of recent years. The dangers inherent in the modified form of rationalization as applied in the petroleum industry are several, the most important of which may be briefly summarized as follows: First, curtailment efforts are concentrated on flush areas, with little emphasis placed upon curbing wildcatting, which creates the risk that new discoveries may keep pace with the growth in consumption, thus perpetuating overproduction. Second, no adequate provision has been made for discriminating between crude oil demand and true crude oil requirements or for restraining manufacturing expansion, thus leaving the door wide open for refinery overproduction.

And third, no plan is included for the substantial reduction of crude oil stocks, a prerequisite to a sound crude

*Economist, New York City.

Contractor Using Fleet of 20 Internationals Excavates 25-Acre Oil Reservoir in 40 Days!

Digs Pit to Depth of 40 Feet Working on 24-Hour Schedule With No Breakdowns or Repairs in Whole Fleet

* * * AN ADVERTISEMENT FOR INTERNATIONAL TRUCKS * * *

INTERNATIONAL

"During the past three years we have had a great many reservoirs to construct for the larger refining companies," writes the Robinson-Roberts Company of Los Angeles, California. "The capacities range from one million to four million barrels. On our last job, we excavated 25 acres to a depth of 40 feet.

This crayon drawing shows the trucks of the Robinson-Roberts Company at work on the Pan-American Oil Company oil reservoir at Lomita, California. It gives an idea of the bigness of the project that kept twenty Internationals busy night and day for forty consecutive days!

"Our fleet of twenty International trucks, working 24 hours daily, gave us perfect satisfaction, and as a result we now use Internationals exclusively. Their sturdiness of construction is demonstrated by the lack of breakdowns of any sort."

* * * * * *

Here is a remarkable test of motor truck endurance and dependability! Just think of it—a reservoir so big that it will hold enough oil to float six battleships—the largest in the world! Twenty trucks working continuously, day and night, for 40 days—without a single breakdown or repair!

Internationals were chosen by elimination tryouts on previous jobs. Mules were used at first, but these were slow and expensive. Trucks, one make after another, replaced the mules, and then Internationals replaced all other trucks.

This remarkable feat is new evidence of International superiority in oil field work. Everywhere, oil men recognize the inbuilt stamina that enables these trucks to do terrific work in outstanding fashion.

If *you* want a truck that will satisfy you in every way, get an International. No matter if your hauling requirements are strenuous in the extreme, there is a type and size for every load and any job. Ask the nearest International branch or dealer for a demonstration. Ask oil field superintendents or traffic men what they think about Internationals—we will send you the names of users in your territory on request. Also a folder on International trucks for oil field hauling.

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606 So. Michigan Ave. (*Incorporated*) Chicago, Ill.

The International line includes the Special Delivery for loads up to ¾-ton; 4 and 6-cylinder speed trucks of 1, 1¼, 1½ and 2-ton capacity; and heavy-duty trucks, double reduction and chain drive, rated 2½ to 5 tons. Also motor coaches and McCormick-Deering Industrial Tractors.

oil situation. It may be hoped that these imperfections will not lead to unfavorable results, or better yet that the technique of rationalization may be improved so as to care for these contingencies; but it can do no harm to emphasize that the application of a new economic tool should be directed with the utmost comprehensiveness and foresight and that economic tools, like swords, are often two-edged.

That the crude oil situation, despite the notable advances made in proration and other forms of production restraint, is even yet handicapped by the application of unsound economics is perhaps best illustrated by the advances in crude oil prices during the summer. The basic function of price is to regulate supply, and when other considerations are permitted to enter into price making, the results are usually unfavorable to the stability of the new prices thus established. It might have been thought that the industry had learned its lesson from the era of inventory speculation and price inflation that characterized the crude oil market during the period 1919-1926.

It is doubtless apparent that the petroleum industry has entered a new phase in its development, in which its operations must be brought into closer conformance with the economic principles which experience had shown to be desirable for the conduct and guidance of other industries. It is not an easy or simple matter to revolutionize the economic policy of a major industrial activity. Yet that is precisely the character of the change now taking place in oil.

Willingly or unwillingly, the industry must solve its problems along economic lines. The road to prosperity lies in that direction. But it is a difficult road to travel, for the petroleum industry is still burdened with the cumulative results of its past economic mistakes and is not united in purpose. The price of prosperity in the oil industry, as in all other industries, is the employment of sound economic principles in its conduct. Is the petroleum industry prepared to pay this price?

Expensive Shutdowns Are Due Mostly to Carelessness

By MacLean Houston*

Read before National Petroleum Association, Atlantic City, Sept. 19

ALL of us at times either overlook or forget to order that extra drive chain for the wax oil chiller or something else just as important. We may overlook the need of a new part, or we may realize the need and neglect the order.

It is the object of this paper to bring out the cost of such negligence, if possible, in order to impress upon the operators and managers of our plants the importance of keeping all equipment working at its utmost capacity.

To arrive at a basis for future calculations, let us first consider the plant that shuts down completely every Sunday. We will assume that it is a complete Pennsylvania refinery running 1000 barrels of crude per working day; that it has net profits of 50 cents per barrel of crude run and an operating and overhead expense (including all costs except that of crude oil) of 80 cents per barrel of crude run.

If it shuts down on Sunday, there would first be the straight loss in profits of $500 per week or $26,000 per year. This loss is bad enough, but it has been explained to me by the claim that the crude can be run some other year and the profit made at that time.

But what about the loss from expenses? We have paid out cash for these and will never get it back. The expenses of a plant shut down for one day at a time will be at the very least 50 per cent of the expenses of the plant operating not including the cost of crude oil. Based on this percentage and the assumptions above the expenses per day would be $370 for Sunday and $740 for week days. The Sunday expenses are a dead loss amounting to $370 per week or $19,240 per year.

From this we must reach the conclusion that a complete shutdown for each of the 52 Sundays in the year will be $26,000 plus $19,240 or a total of $45,240 per year.

This is one of the papers scheduled for the round table discussion of refining problems. It reached us too late to go with those of D. W. Hovey and J. B. Northrop which are on pages 64 *and* 60 *of the Sept.* 19 *issue.*

Basing our problem on this example, each of us can insert the figures that apply to his own plant and figure the cost of a complete or partial shutdown. Or if it is a case of a still being shut down we can divide the total expenses (not including crude) plus the total profit for a month by the number of still days (number of stills times 30) that the plant has available. If you will do this with your plant figures you will realize to what extent you should spend money to keep your stills in operation every day.

Someone in the plant should make it his special business to study each shutdown, with the idea in view of avoiding a repetition in the future. When you go through the other fellow's plant ask about the problem that is worrying you. Nine times out of ten he would rather talk about shutdowns and how to avoid them than he would about how he makes his particular grade of oil.

Now let's consider a few definite examples that one actually sees through the Pennsylvania refineries. A few plants let a still cool for 24 hours before they send men in to clean it. Other plants use air jets or blowers and have the men in the still within 3 hours after it is pumped out. How many of us have not seen a filter house at a standstill waiting for the steam pressure to come up? I know of an actual case where a certain plant offered a man a position because he was able to show them how to start up their wax house. It was shut down on account of the failure of only one run of a chilling machine.

The only excuse is poor management, but very few men can say that their earth burners were not loafing one day and behind in their work the next. We all know that the roofs of lubricating oil tanks spring leaks just at the wrong time, when they are full of finished oil. We have all had the railroad inspectors condemn a tank car for repairs after it has been loaded. We did not order the new earth for the filter house in time. A fire is caused by carelessness, defective equipment or poor design.

Any of us could, for another hour or so, go on mentioning these things which cause a loss in production. They all cost money and more money than most of us realize.

Then there is another type of trouble that also causes a serious loss of production and money. That is, that the finished oil does not meet the buyers' specifications. If it is found to be off test before it leaves the plant it invariably causes a loss in production. It is more costly to rerun oil that should be finished through the stills than it is to let the still stand idle, and sometimes it is far more costly to try to bring oil to test by running some of higher specifications and mixing than it is to rerun.

If it is found to be off test when

*United Refining Co., Warren, Pa.

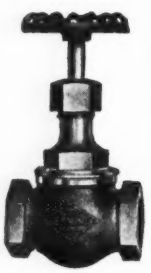

Fig 106
Screwed, Jenkins Standard Bronze Globe Valve

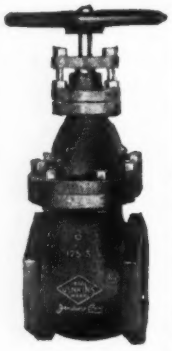

Fig. 325
Screwed, Jenkins Standard Iron Body Gate Valve

Valves, like wells, are tested by time

It isn't the first hour's output that proves a newly-drilled well to be a real discovery. Nor the first day's service that proves a valve reliable.

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New Safety Picture Series Prepared

TULSA, Sept. 20.—The Safety division of the Mid-Continent Oil & Gas Association is sending out its second motion picture program which will be shown to more than 150 groups of refinery, gasoline plant, pipe line and producer workers throughout the Mid-Continent field. With six complete programs on the road the showings will be completed within the next two months.

The safety news reel prepared for the current program is based on major accidents reported from the field within the last two months. The accidents are shown as they actually occurred, with the causes of the accidents visualized on the screen.

One accident shown is that of a refinery worker falling from a 60-foot bubble tower. Another was that in which a man was killed by a falling joint of pipe as a result of his standing on another joint of pipe which rolled with him.

The news feature this time consists of three reels. In addition there is a two-reel comedy with each show and an educational reel. The safety reels were filmed by the safety section under the direction of Don J. Wallace.

Californians Entertain Reeser

LOS ANGELES, Sept. 22.—E. B. Reeser, president of the Barnsdall Oil Corp., was honor guest at a luncheon given at the Jonathan Club in Los Angeles, Thursday Sept. 13, with R. A. Broomfield, vice-president of the Barnsdall, as host.

Other guests included several oil executives and bankers of California. Mr. Reeser explained the conservation program in effect in the Mid-Continent and suggested that it would be possible for California to make considerable progress along this line, complimenting California operators for the progress they have made so far.

OIL CITY, Pa., Sept. 21.—John Reid, vice president, and H. L. Hileman, sales manager, Joseph Reid Gas Engine Co., Oil City, left for Washington, D. C., this week to attend a meeting of the Society for Development of Internal Combustion Power. The association will spend several days with the Department of Commerce.

The NEW ERA

Friendly Attitude at Washington Toward Oil Industry's Welfare

By Fayette B. Dow*

IT IS the feeling of our office that, taken as a whole, the oil industry's relation to the federal government is more satisfactory than at any previous time in its history.

If we were asked to give our reasons for this feeling we should say, first, that it is a feeling—a judgment based in part upon what one senses as well as upon more tangible evidence.

There is in the atmosphere at Washington, in and out of the departments, a friendly concern about the oil industry's welfare. There is a greater recognition of the competitive struggle within the industry, more knowledge of its economic hazards, and a growing appreciation of the services of the industry to the public.

If a more specific reference is appropriate, we should refer to these facts:

The Federal Oil Conservation Board, by public hearings and answers to its questionnaires, has sought to learn the truth and the whole truth about oil—its supply in relation to the public's requirements, the methods by which it is produced, manufactured, distributed, the laws under which the industry's practices have developed in the past, the changes in those laws which the conditions of the present require. Its reports have been free from that all-too-familiar criticism of the industry's mistakes or failures, but have had the qualities of statesmanship in seeking to promote better practices for the future.

The Department of Justice, while keeping in touch with the work of the Board and the cooperative measures encouraged by it, has shown no desire to interrupt or interfere with the courses of action which have been taken.

The Federal Trade Commission has no important investigation of the oil industry in progress—an infrequent occurrence during the last 10 or 15 years. The report of its latest major investigation, recently published, shows that the facts were gathered with painstaking care and the findings are favorable to the industry.

We find in the decisions of the Interstate Commerce Commission no conclusions adverse to the industry, as, for example, that gasoline is a luxury and can therefore be made to bear proportionately high transportation costs.

On the other hand, the Department of Commerce has continued to extend its useful services, among which we might instance the trade information service covering "foreign petroleum statistics" and "petroleum refineries in foreign countries."

A number of the federal bureaus, such as the Bureau of Mines and the Bureau of Standards, are at work on problems of a scientific nature, in cooperation with the oil industry and greatly beneficial to it.

In Congress from time to time attacks upon the oil industry are still to be heard, but these are less numerous than a few years ago, and uttered with less effect.

To what is this improved attitude in Washington attributable?

Probably to no single cause. There are several influences which may be noted.

The industry's attitude toward the Federal Oil Conservation Board, after a period of uncertainty, became one of candor and cooperation. The appreciation by the industry that certain uneconomic practices in developing producing properties were beyong its control, if unaided by public, authority, became the starting point of developments which are likely to have far reaching consequences.

There has been a progressive, if somewhat belated, recognition in Washington of the fundamental changes in the industry brought about by the dissolution of the Standard Oil Company, of the conflicting interests of the former units of that company, of the strength of the newer oil companies, of the keen competition that exists in the industry, of the meager profits, of the relatively low prices of petroleum products. It is also recognized that there has been a growing appreciation of these facts on the part of the public. It results that, if the industry is still a temptation for the politically-minded, it is not so popular a target as in former years.

In the government bureaus, those who have responsibilities in connection with the oil industry have become consistent readers of the petroleum trade press. The informative influence of our trade press in Washington is far greater than is generally appreciated. Great credit is due these oil publications for their impressive presentation of the statistical and economic facts concerning the industry.

But the new era which we have in mind is not one of better understanding, important as that is, but an era in which intensely individualistic and competitive industry has begun to practice a genuine cooperation and has welcomed the assistance of public authority in the solution of its economic problems.

UNTIL a comparatively recent period there was a natural but very definite opposition to any suggestion of the exercise of federal or state authority in the solution of the industry's problems. The industry, while rendering a great public service in supplying sources of light, heat and power indispensable to the public welfare, is not a public utility.

Its great progress, as in the case of all American industries, has been made possible by the free play of individual initiative. The war period with its troublesome investment of authority in government bureaus is still a fresh memory. The undoubted fact that a limited public supervision tends to be progressively more in-

"AN ERA is at hand in which an intensely individualistic and competitive industry has begun to practice a genuine cooperation and has welcomed the assistance of public authority in the solution of its economic problems."

Thus Fayette B. Dow, general counsel of the association, summed up the present trend of the oil industry in his address before the National Petroleum association at Atlantic City, Sept. 21.

Mr. Dow is the best informed man in the oil industry upon relations of the industry with the federal government at Washington, since he is constantly in direct contact with government departments. His accompanying remarks should be read by all oil men.

*General Counsel of National Petroleum Association.

clusive has been in the minds of all who have studied the practical difficulties requiring a remedy. It is entirely understandable, therefore, that the industry has desired to solve its problems free from government interference. But the course of events has seemed to make the choice of complete individual freedom a path of economic chaos and disaster.

THE advent of the Federal Oil Conservation Board, almost four years ago, brought important public officials, if not official authority, into the picture with dramatic and unexpected suddenness. The President of the United States himself took cognizance of the situation—"the present methods of capturing oil deposits are wasteful to an alarming degree" * * * it is "impossible to conserve oil in the ground under our present leasing and royalty practices if a **neighboring owner or lessee** desires to gain possession of his deposits."

He appointed four men of no less standing than members of his own cabinet. "I have constituted a Federal Oil Conservation Board . . . to study the Government's responsibilities . . . to enlist the full cooperation of the oil industry. . . . I . . . desire that these conferences be open and exhaustive. . . . The future might be left . . . to the law of supply and demand, . . . the **oil industry's welfare** is so intimately linked with the industrial prosperity and safety of the whole people, that **Government and business can well join forces** to work out this problem of practical conservation."

Wasteful methods, brought about by **neighboring owners,** have created a situation so alarming as to jeopardize the public safety and the **oil industry's welfare** which is so intimately a part of our national life that we cannot rely upon economic law. On the contrary, Government and business must join forces.

This was the substance of a message addressed—not to a Federal Trade Commission or a Department of Justice or a Senate Committee—but to the members of the President's cabinet.

It was of course far easier for the President to issue this challenge of statesmanship than for the industry to meet it as a unit. Here was an industry whose very genius seemed to be born of its freedom of action. Suppose a neighboring owner did start the mad rush of competitive drilling. Was not that one of the rules of the game? Had not the Supreme Court of Pennsylvania said: "Every land owner or his lessee may locate his wells wherever he pleases, regardless of the interest of others. He may distribute them over the whole farm or locate them only on one part of it. He may crowd the adjoining farms so as to enable him to draw the oil and gas from them. What, then, can his neighbor do? Nothing, only go and do likewise. He must protect his own oil and gas"? (Bernard v. Monongahela Natural Gas Co., 65 Atl. 801.)

But the industry had recently added greatly to its knowledge of the functions of gas in an oil structure and a candid study of current producing methods, in the light of these better-understood facts, aided not a little by unfavorable profit and loss accounts, brought sounder conclusions.

The history of this phase is fairly reflected in a statement made by Secretary Work in May, 1927:

"The government's position relative to overproduction evils, the necessity for avoidance of waste, and actual conservation of petroleum in the ground, is clearly stated in the report which was submitted by the Federal Oil Board to President Coolidge last September. More than two years ago, when the President created this board to counsel with the oil industry, 'in the interest of the Government and the industry alike', the thought was expressed by certain elements in the oil world that there was no overproduction and no danger of such a menace; that the industry would be able to better its own problems if unhampered by Federal suggestions. But, after painstaking efforts and one of the most intensive surveys ever made by any agency of the Government, the President's board pointed out the prevalence of certain existing and potential evils. To the credit of the industry, it may be said, these menaces were readily acknowledged and immediately steps were taken by the greater portion of the industry to observe as far as possible some of the suggestions which this Federal board advanced.

"The present plight of the industry is recognized fully by this board, and I feel that the leaders of the oil world now realize that the Government is ready and willing to assist in every proper manner to meet the crisis."

The Federal Oil Board's report stated that the power of the Federal Government, apart from national defense, to regulate oil production is limited to its own oil lands, stressed the importance of cooperation in the development of oil pools, and strongly urged action by the State where it found controlling power to reside.

AS TO the authority of the States, the Board said that "the right of the State under its police powers to prevent the action of one owner from working a deprivation of the rights of other owners of a common property, and to prevent waste or destruction of the common property by one of the owners, seems reasonably clear. The right of the State to prevent the waste of natural resources is rendered more important in this matter by the newly discovered or at least more widely recognized facts regarding the role of gas in the oil sands. . . . The authority of the State to prevent the waste of natural gas has already been declared and it logically applies as well to the dissipation of gas pressure, without which great quantities of oil would be entirely wasted. . . . State governments should promptly study the economic advantage of cooperative action by land owners and oil operators, looking toward sane development of new fields, and consider legislation authorizing cooperative agreements, under proper safeguards."

THE Committee of Nine recommended the enactment of federal and state legislation which would make it clear that agreements for the cooperative development and operation of single pools are not unlawful and which, also, would permit agreements under government sanction for the curtailment of production. It recommended further study of the waste of natural gas "in order that legislation may be formulated which will forbid such waste as fully as may be done without working injustice and unreasonable hardship."

But conditions have not waited for new legislation. Events have moved rapidly in the two principal oil producing states east of the Rockies, Texas and Oklahoma. Under statutes in effect for some years (Texas Session Laws 1919, 285; Oklahoma Session Laws 1915, 398) the authorities of those states have issued orders restricting and prorating the output of flush pools. Again to the credit of the industry it should be said that these actions of public authority have been taken with its almost complete approval, and were preceded by voluntary cooperation to accomplish the same purposes.

The most recent of these orders is that issued Sept. 8 of this year by the Corporation Commission of Oklahoma. It restricts, until modified, the maximum production of crude oil in Oklahoma to 700,000 barrels a day, of which the flush pools are permitted to produce 425,000 barrels.

* * *

The order is predicated not only upon the prevention of waste but to prevent an "unfair and inequitable taking" of oil, as well as a "disproportionate use" of gas pressure. In other words, the order is apparently justified, in the view of the Oklahoma Commission, not only by its duty to prevent waste under the police power, but its recognition of the correlative rights of the surface owners of the oil deposits.

We shall not discuss at this time the legal implications. Obviously the conservation statutes of the States have sought to change greatly a situation under which an owner or his lessee was said to have the right to drill anywhere on his lease and at any time that suited his own business purposes. Obviously also, forward steps are being taken in rec-

From an article by C. O. Willson in
The Oil and Gas Journal, July 19, 1928

"Thus the refiner actually has 1½ to 2 bbls. of raw material where formerly operating with a skimming plant he had only one. This obviously gives him greater independence and tends to stress the importance of the manufacturing processes in the price received for the finished products."

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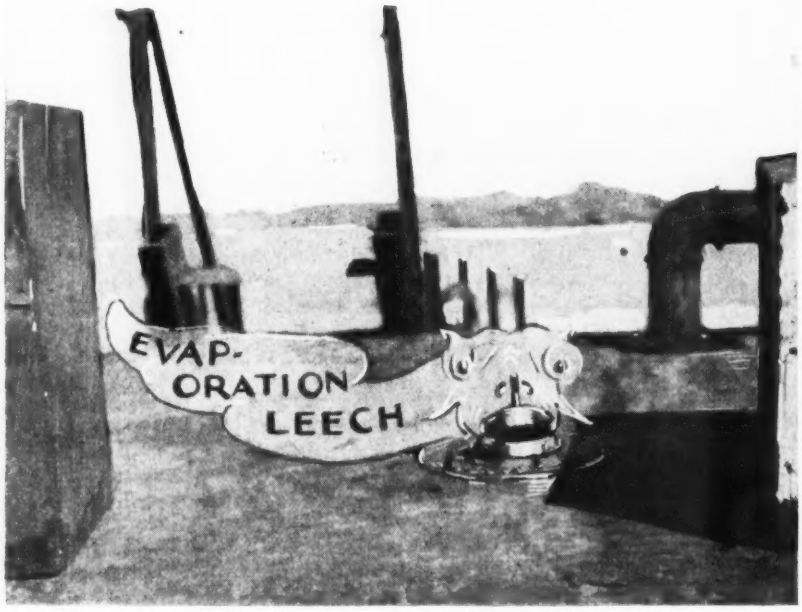

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ognition of the correlative rights of "neighbor owners or lessees," and rules seem to be in the making which will define what is neighborly conduct in an oil producing field. The present daily domestic production of the United States is, in round numbers, about 2,500,000 barrels. By competitive drilling methods employed by the industry only a year or two ago and considered one of its inevitable practices, it has been estimated that this production might be increased to perhaps 5,000,000 barrels per day within a comparatively short time.

The success of recently adopted methods of locating probable oil bearing structures, such as geophysical exploration, is indicative of potential overproduction for a prolonged period of time.

During the months of the summer just past there has been a substantial balance between supply and demand for petroleum. In May there was a surplus of about 1,000,000 barrels, in June and July a draft upon stocks of about 500,000 barrels and 1,100,000 barrels, respectively. Present indications are that, in view of recent increases in production and the lowering of the seasonal demand which is in prospect, there will be a period of oversupply in the near future even under the restrictions issued by public authorities in Texas and Oklahoma.

Any substantial increase in the present production of crude oil would be disastrous to the industry and greatly impair its ability to serve the public, quite apart from the wastes of gas and gas pressure which might be attendant upon it.

Intelligent leadership, influenced by a better knowledge of scientific facts, and recognizing the force of economic compulsion, has brought the oil industry—not to the verge of regulation, but certainly to an era in which "government and business" have joined forces "to work out this problem of practical conservation."

There is no desire on our part to predict the future events of this new era. Assuming a legal sanction for the necessary cooperation between units in the industry, or resort, as at present, to restriction of drilling by the order of a state commission, there will clearly be required in the industry a high order of economic leadership, involving a vision of the welfare of the whole industry and consistent regard for the public interest.

But we do venture to predict that there will be less fear of the part to be played by federal and state governments in protecting the welfare of the industry and of the public. If events bring about an increase of official authority it will be found that the industry, by a straight-forward presentation of its facts, can protect itself and secure a sound, stable prosperity.

Low Humidity Hastens Bright Stocks Settling

By L. C. Jamieson*

Read before National Petroleum Association, Atlantic City, Sept. 19

COLD settling of a solution of benzine and Pennsylvania 600 stock settles out amorphous wax and some other impurities which ordinarily would be left in the steam refined stock. However, the resulting bright stock has not been too highly refined by the elimination of too much wax, which seems to have a definite value in motor lubrication.

The old established method of getting rid of these impurities was simply to let nature settle it. Theory and practice developed fairly rapidly in a few of the early Pennsylvania refineries. Theoretically a tall narrow tank should be the best as it concentrates the petrolatum bottoms in a narrower circle and hence more of the settled solution, which I shall call "top mix," can be skimmed off.

On the other hand, a flat broad tank theoretically should settle out quicker as the petrolatum on its way down through the solution would not have so far to travel. In practice we believe that a tank of medium proportions, between these two extremes, gives the best all around results. For instance a 25 by 30-foot tank of 3000 barrels capacity is our star settler. The other settlers we have of 1000-barrel capacity, size 20 by 20 feet, do not compare either in chilling time or settling time per gallon received with the larger tank.

There have been many methods and theories tried out in the arrangement of chilling coils in settling tanks. The commonest, of course, is a simple pipe coil with return bends at either end in one plane near the top of the tank. Refiners have used these coils not only in one plane, but in two planes a few feet apart or even in three planes, having a coil at the top, at the center and near the bottom of the tank. We have found that the fastest time can be made with coils in two planes, the top one within two or three feet of the top level of the solution and the second plane a few feet under the first one.

Other refiners have tried vertical coils which have advantages, one of which we understand is that petrolatum does not freeze so readily on the coils themselves and thus retard the chilling effect of the brine circulating through the coils. In a certain settling tank that the speaker knows of, a very successful use of second hand hotel radiators was achieved.

These happened to be large radiators shaped in a right angle, originally around the corner of a room. There were four of them and they were placed in the settling tank and the brine circulated through them. Another successful way of chilling the solution in a settler tank has been to prepare the solution for chilling in one tank, circulate it then through the use of a wax chiller such as you all have in your press rooms, by means of which the solution temperature drops to a neighborhood of 30 to 40 degrees F., then to fill the ordinary settler with its brine coils direct from the wax chiller and carry on the chilling in the usual way. Others have successfully used the direct expansion of ammonia into the coils of a settler, although this method originally caused a lot of trouble through leaky joints.

Settling tanks, of course, are insulated and as a general rule good insulation pays for itself. All insulation really is the entrapping of air between other substances as air itself is one of the best insulators known. A successful insulation is had by the use of the old fashioned saw dust that our friends, the ice men use in their ice houses, and the use of saw dust is surprisingly near the finest cork insulation or asbestos proposition which is on the market as far as the efficiency is concerned.

To be successful in settling bright stock the solution should be preheated at least to 90 degrees F., to drop out the moisture which may be present in suspension in the solution, either from the gasoline or from the oil. The time tested way of doing this was to fill the settler and then heat the solution by the use of steam coils in the bottom of the tank.

A leaky coil, however, would always cause a great deal of trouble and possibly the best way that the speaker knows of to handle this portion of the process is to pass the mixed solution through a heat exchanger using the exhaust steam from the pumps to heat the solution to the proper temperature. This obviates any but the smallest chance of moisture getting into the solution, is very economical and speeds up the preparation of the settler for the beginning of the brine. The method I speak of is used by us with great success. We have two steam pumps, one for filtered solution and one for straight benzine, equipped with Mason governors.

THESE pump into the same line, are passed through a cylinder with many baffle plates in them and the solution is thus completely mixed, a very important first step in preparing a settler. From the mixing chamber the solution goes to the heat exchanger which was designed to heat 350 barrels of solution an hour to 100 degrees F. From the heat exchanger the solution goes direct to the settler leading through the bottom draw-off line. The Mason regulators are set to give us the gravity we require and the entrance of exhaust steam into the heat exchanger is handled through a valve and the temperature reading taken at the outlet of the heat exchanger. Very close control can be had by using this method and we save from 6 to 12 hours on each settler, depending on its size, also much benzine evaporation.

There are three cardinal principles to remember in getting ready to start a settler. The first is for the solution to be free from moisture, sec-

*Viking oil.

Amerada Petroleum Corp. gasoline plant at Healdton, Okla.

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ondly and perhaps most important of all, is to have it thoroughly mixed, and third to bring the contents of the settler between 90 and 100 degrees to drop out the moisture that may be left in it. Of course, the settler must be fairly clean and should be kept that way.

We have found that within certain limits the gravity of the solution mix is not important except that if you use too much benzine the percentage of top mix received from the settler is too low. We aim to have our settlers close to 44 gravity using about 26½ gravity steam refined filtered stock and 56-58 gravity benzine around 400 end point as a solution. The gravity is controlled as previously mentioned through the Mason regulated pumps and roughly the percentage is about 60 per cent benzine and 40 per cent filtered stock. It has been our experience that a filtered stock produces *less* petrolatum than an unfiltered stock.

There are two generally used methods of skimming the top mix from the settling tank. One is by the installation of permanent manifolds on the side of the tank, 6 to 8 inches apart and the other is by the use of swing lines. Both are successful. The first is more expensive to install, but has the advantage that a careless pumper will not drop a swing line and spoil the settler.

There are as many theories about cold settling as there are cold settling plants. We will mention a few that others hold and then I am sure we should be afforded the opportunity of advancing some of our own.

In cold settling an oil there necessarily must be convection currents in the tanks; whether the oil goes up the center and down the outside or down the center and up the outside. Or in other words we know there must be such currents because there is a difference of temperature present in the tank. We know of one refiner who used to start his brine through the coils then get on top of the tank and test the currents set up with little scraps of paper, and, we understand that when the currents so started pleased him he then let the chilling continue.

If they did not please him as they first started off, he would shut off the brine and let the tank quiet down for several hours. Others have held the theory that there is such a thing as "shock chilling" and that brine lines in that case became covered thoroughly with petrolatum and hence were insulated from the oil, and that, in such a case the settling was badly delayed.

We held to this theory for awhile as we had several settlers hang on us for days and even thought of trying the old expedient of throwing a dash of aqua ammonia in the top of the settler which somebody said would work. We assumed that these

settlers had been "shock chilled." We later decided that what caused those particular settlers to hang was the fact that they were not thoroughly mixed to start with. It is interesting to note that since we have used the Mason regulated pumps, the mixing chamber and the heat exchanger, there has been no example of a "hung" settler.

For something over a year the speaker has been keeping records of barometer, outside temperature, kind of weather, relative humidity and other data in relation to every settler handled at the Viking Oil Corp. plant. At first records were kept at 8 a.m., 12 p.m., and 5 p.m.—later every six hours day and night.

Per barrel of solution, assuming that we're chilling from approximately 95 degrees F. down to 10 degrees F., gravities of solution compared to chilling time out of 160 settlers check up as follows: From 43 to 43.9 gravity 37.9 hours per 1000 barrels; 44 to 44.9 gravity 36.3 hours per 1000 barrels; 45 gravity upward, 38.2 hours per 1000 barrels.

The following data is given for what it is worth on settling time. In relation to gravity it must be stated however that these figures are subject to the application of some judgment because there are two or three cases in these figures where a proper mix was probably not made and that of course in the two lower gravity brackets. From 43 to 43.9 gravity, 44.1 hours; from 44 to 44.9 gravity, 41.2 hours; from 45 gravity up, 35.1 hours. This might lead us to think that the lighter gravity oils settle out quickest to a very large degree. We think they do settle out a little quicker, but on the other hand the percentage of top mix received is so much smaller when the settler is light in gravity that it does not pay.

Color of solution has no apparent effect on time of settling or chilling.

Relative Humidity: Out of 143 settlers seven settled out when relative humidity was apparently going up. 136 settled out after one drop in humidity. 14 of these 136 might be considered as having settled out when humidity stayed stationary.

Barometer: Out of 144 settlers, settling took place when barometer was going up 94 times and down 50 times.

Barometer up, humidity down, 90 settlers out of 143.

Barometer up, humidity up, 3 out of 143.

Barometer down, humidity down, 46 out of 143.

Barometer down, humidity up, 4 out of 143.

Barometer conditions as such have no effect on a settling tank. Outside weather conditions in themselves have no effect on the settling of the oil, with one exception to be mentioned in a moment. Outside temperature has no effect on the settling of an oil in a settling tank after the chilling has taken place. That a solution of 43 gravity in a settler will settle out better than one of 46 gravity or higher, all other conditions being equal and regard being had to percentage of top mix received. The introduction of bright stock washings into a settler solution to be chilled down apparently has no effect on the settling. A sudden drop over five points in relative humidity seems to make a settler drop out in some 6 to 18 hours thereafter. This brings up the question of "why not make your own humidity inside of a settling tank," a problem on which we are now at work.

Better Fractionating Equipment Saves Heat

By D. G. Brandt*

Read before National Petroleum Association, Atlantic City, Sept. 19

IN SO much as the distilling equipment is the heart of a refinery; it has been the target of much research and development. This apparatus has passed through many stages, from the old cheese box and cylinder stills operating batch with no towers, then connected together for continuous operation, then the addition of towers and later with pipe still preheaters. Much could be said about this type of apparatus but I believe the industry as a whole has accepted the pipe still heater and tower fractionator as the last word in distilling equipment. The arrangement and number of such pipe stills and towers for complete distillation is a problem which will have to be solved by the engineers for each individual case. At the present time there is no complete distilling unit that can be universally adopted.

The fractionation towers used today are similar to those used in alcohol and benzol fractionation and much of the tower design had already been worked out. The refinery engineer and much of the tower design had already been worked out. The refinery engineer merely had to modify the designs to his needs.

This was not true of the pipe still heater and this part of the unit had to be designed and built from very meager data. These heaters were originally constructed with ordinary lapweld pipe set in a brick box. The tube bundle was set directly over the combustion chamber, which was usually too small for the quantity of fuel burned. The result was burned out tubes from flame impingement, overheating and oxidation. Dutch ovens were then added to these heaters which reduced the tube failures but they were still unsatisfactory. During this period the use and control of radiant heat absorption was not known and the designer was always trying to get his tubes farther away from the combustion chamber as all of the tube failure was laid to flame impingement and small combustion space.

To overcome this, the tube bundle was placed alongside the fire box and the flue gases passed downward over them. This also allowed the operator to pass the oil upward through the tubes counter current to the flue gases and increase the efficiency of the heater. This heater worked fairly satisfactorily so long as the fire box temperature was kept low by the use of excess air. The efficiency of these heaters was low and the oxidation of the top tubes rapid and tube failures frequent. It was very apparent in these heaters that the arch and back wall of the heater reflected considerable heat to the top tubes and in order to reduce this, tubes were installed directly above the tube bundle and up the back wall to absorb this heat reflected from the fire box. The hot flue gases from the fire box then entered a space that was surrounded on three sides by tubes and little or no tube trouble was experienced if the fire box temperature was held below 1800 degrees F. The efficiency of these heaters was still low and when used with a high oil inlet temperature ran about 40 per cent.

Up to this time we were not concerned very much about the efficiency as this was better than that of the old cylindrical still and we felt the B.t.u. transfer rate was high as indicated by the number of tube failures.

However, now having a unit which operated satisfactorily from a mechanical and maintenance standpoint, we made a complete engineering survey, checking the B.t.u. transfer for each row tubes. To our surprise we found the transfer rate very low for the tubes in the bundle and particularly so in the bottom rows; while the tubes in the roof and up the back wall above the bundle were doing more work than the tubes of the bundle, with the exception of

*Research Engineer, Henry L. Doherty Co.

the top row. About this time considerable work was being done on the absorption of radiant heat in connection with steam generation for power plants, which checked the results of our findings.

We then redesigned our heaters to take advantage of all the data obtained by the engineering survey. In this design we extended the roof tubes over the entire roof and up the back wall above the tube bundles, and insomuch as these heaters were to work on cracking equipment having an inlet oil temperature of 750 degrees F. we used air preheaters to preheat the air for combustion and recirculated the flue gases back into the fire box to reduce the fire box temperature and increase the gas velocity and temperature difference over the tube bundle. With these additions we were able to reduce the excess air to a minimum and equalize the work done over the entire heating surface, which materially increased the capacity per square foot heating surface over previous designs.

These heaters operate with a fire box temperature of 1400 degrees F. and a stack temperature of 375 degrees F. with an oil inlet temperature of 750 degrees. The flue gas analysis will compare with that of good boiler practice, and the thermal efficiency under test conditions is about 80 per cent.

All air for combustion is supplied by electric driven fans and the pressure in the fire box is slightly above atmospheric pressure. The amount of flue gas recirculated can be varied either by damper control or by the speed of the hot fan, thus putting the fire box temperature under the control of the operator.

Later developments of this heater have been to again increase the radiant absorption surface by using a thin diaphragm to separate the tube bundle from the combustion chamber, or installing a baffle behind the first row next to the combustion chamber. Other modifications are to lengthen the flame travel before adding the recirculation gases and rearrangement of ducts and hot fans.

In all of our designs we do not attempt to drive our radiant absorption tubes at a high rate by carrying high firebox temperatures, but work all tubes at a moderate rate. This allows the operator to raise or lower the firebox temperature at will, without materially affecting the capacity or efficiency of this heater. This is done by changing the quantity of flue gases circulated and has a great advantage for heaters used on cracking equipment by controlling carbon deposits in the tubes and reducing firebox temperatures at the end of a run. You can readily see that with no flue gas circulation, or a fixed flue gas circulation, your firebox temperature will go up as your tubes become dirty and the wall temperature of the tubes becomes hotter, even to the point of tube failure if the operation is continued.

THUS far I have confined my remarks to our own developments and experiences, but at the present time there are several successful and efficient heaters available to the industry. These heaters have been classified as open radiant; shielded radiant and recirculation. From my observation, either the open radiant or shielded radiant types are very satisfactory when used where the oil inlet temperature is low, or where only a moderate air preheat is used. The recirculation heaters are used where high inlet oil temperatures are encountered, and usually in conjunction with air preheaters. In these heaters, firebox control is dependent entirely on the amount of flue gas recirculated, and fans and ducts for handling these gases are extremely large and could be reduced to less than half the size by the addition of radiant absorption tubes in the heater.

You will note that I have referred to the oil inlet temperature of the heater in a number of places and all of our heaters are designed for high inlet oil temperature. If the oil inlet temperature is low, say below 400 degrees, F., I would not recommend the installation of air preheaters or recirculation as a general rule. This will depend on the cost of fuel and the savings realized from the addition of this equipment. In heaters for such service sufficient radiant absorption tubes can be used to reduce the firebox temperature to a point where it will not be injurious to any of the tubes, provided they are properly arranged.

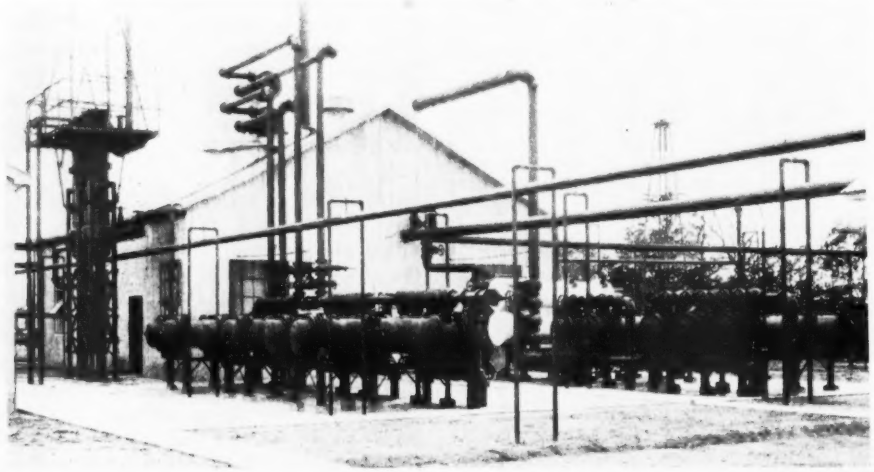
Insomuch as the heater is only a part of the distilling unit and supplies only the heat that is not recovered from the process, it becomes of less importance as the efficiency of our heat recovery increases.

The present bubble cap tower, or any fractionating tower for that matter, is very inefficient from a heat standpoint. Thermally, it is a piece of apparatus which takes heat in at a high temperature and delivers it back to you at a lower temperature and the longer range of products you produce from a single tower the greater the reduction in temperature between the inlet and outlet of the tower. As an illustration, let us take a single tower, pipe still unit running on crude to a low percentage bottom and taking off gasoline at the top, and kerosene, gas oil, and wax distillates off the side, through stripping sections.

The tower will receive the total crude from the pipe still at a temperature between 700 degrees F. and 800 degrees F. and deliver gasoline vapors at the top at approximately 325 degrees F.

The side streams will be withdrawn below their boiling points due to steam stripping and we will be required to pump back into the tower sufficient gasoline as reflux, to absorb all the heat of vaporization of all products other than the gasoline and all the sensible heat between the inlet temperature and the temperature at which all products leave the tower. Thus we have an enormous quantity of heat at 325 degrees which is far in excess of what the crude can absorb in the vapor interchangers. The interchangers on the side streams and bottom can recover some heat, but as a whole the crude seldom reaches 400 degrees F. with very little vaporization due to the high pressure on the interchangers.

To overcome this disadvantage we have developed what we term an "interchange tower". This tower differs from the straight bubble cap tower in that the crude is passed through interchangers between each bubble tray with a fixed temperature differential between the crude and vapors ascending up the tower. Interposed between the vapor interchangers, the crude is passed through the liquid product interchangers which assist in maintaining the proper thermal gradient. The crude is carried through the interchangers at substantially the same pressure as that in the tower and at



Braun equipment at Sinclair Oil & Gas Company's Plant No. 12 in the Seminole field

a pressure below that of the liquid interchangers. This has a marked advantage over the usual system as no products are thrown off test by contamination, but any leakage is merely added to the crude and is reprocessed. The theory on which the tower operates is entirely different from the straight bubble cap towers and is operated on fixed temperature gradients between the trays. Although the reflux flows downward through the tower from tray to tray, it increases in quantity as it proceeds down the tower unless taken out by the proportional reflux boxes. The sides streams are taken out and handled similar to other towers, except the kerosene is made as an overhead distilled product. The crude leaving the last interchange has been heated by recovered heat to 500 degrees to 550 degrees F. and approximately 45 per cent of the crude has been vaporized. At this point the vapor is separated from the liquid, and the liquid is pumped through the heater and into the separator where the vapors and liquid are separated, and the vapors passed to the base of the tower along with those previously removed from the crude. The bottoms, as well as the side cut products, are pumped through their individual circuits, and are cooled by the incoming crude.

All products, with exception of the kerosene, are cooled to an average temperature of 125 degrees F. without the aid of water cooling. The only water coolers used are those on the kerosene and the final gasoline coolers. Both are thernial and fractionating efficiencies are extremely high. The control of the unit is simple and the only automatic equipment necessary is flow controller on the crude supply.

I have given you this short description of some of our distilling equipment to show why all of our heater designs have been for high inlet crude temperature.

Although I previously mentioned that the efficiency of the heater is gradually becoming of less importance as we increase the thermal efficiency of the fractionating equipment, it has always been my aim to make each piece of apparatus as efficient within itself as the economics will permit, and when these are properly connected and synchronized, we have the maximum yields of products at the minimum cost.

PONCA CITY—W. H. McFadden, vice president of the Marland Oil Co., with Mrs. McFadden is in Alberta on a tour of the holdings of the Hudson's Bay-Marland Oil Co. Recently the International Utilities Corp. contracted with the Hudson's Bay-Marland company to drill a deep test in the Viking field, 75 miles southeast of Edmonton. The Viking field supplies gas to Edmonton and other towns in the region.

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in tube stills and cracking units using Ohiolock Frictionless Return Bends. This barrier to steady flow is minimized by the design of the passage through the bend. The oil is allowed to flow—from tube to tube—without restriction or retardation. Pressure drop being reduced—production is increased.

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RETURN BENDS

Water Shipment of Oil Now Far Exceeds Transportation by Railroad

ATLANTIC CITY, Sept. 21

OIL companies will make increasing use of water and truck transportation facilities to move refined products, particularly, on the present basis of railroad short haul rates. Willis Crane, traffic attorney for the National Petroleum Association told its members here today.

In 1916 the railroads carried 15,360,000 tons of a possible 30,708,052 tons of oil products, or slightly more than 50 per cent, said Mr. Crane, while in 1926 they transported only 44 per cent. During 1921 to 1926 the domestic water movement of petroleum products increased by 66,879,813 tons, or 256 per cent.

"The tendency to take advantage of existing waterways has been a constantly increasing one," said Mr. Crane. "Of the total refining capacity in eastern territory, 706,400 barrels a day, 619,000 barrels, nearly 88 per cent, is located on important waterways offering to the refineries wide areas of distribution without calling on railroads.

"In 10 years the capacity of these plants located on waterways has been increased 156 per cent, while the capacity of plants not located on waterways, the small group of refineries in western Pennsylvania and New York, increased by only 80 per cent.

"Waterway refining capacity of 88 per cent of total plant capacity has access by water transportation to 90 per cent of the population.

"It is not difficult to visualize the great influence on the economics of petroleum distribution which is exerted by water and tank wagon transportation. Consider the central New York situation. Buffalo, Rochester, Utica, Schenectady, Troy and Albany are all either adjacent to the New York state barge canal or the Hudson River. They are all strategic points for location of bulk terminals. They may receive supplies either from Buffalo or other Great Lakes refining points or from the metropolitan New York area.

"A reasonable 30-mile radius of tank wagon distribution from any of these points will serve the very heart of interior New York.

"Consider the eastern seaboard situation. That territory is honeycombed not only with refineries of large capacities but with waterways permitting the entire eastern coast and many inland points to be served directly by water and by tank wagon.

"Throughout the entire course of the Ohio River there are strategic points for distribution of petroleum products entirely aside from actual refining points located along its course, of which there are many.

"All along the border of the Great Lakes, water transportation has a strong influence upon distribution.

"In the interior many points having no direct connection with waterways are so situated as to constitute strategic points for distribution of petroleum and its products by tank wagon."

Mr. Crane quoted figures to show the extent to which the transportation of crude oil is lost to the railroads because high rates drove the oil companies to pipe line and water movement. Use of truck transportation is increasing for the same reason.

"In 1926, refineries in the United States ran approximately 779,000,000 barrels of crude through their stills," he said. "This represented potential crude oil traffic of 117,000,000 tons. In the same year the railroads carried about 10,700,000 tons of crude oil, or about 9 per cent of the total traffic."

Much of this rail tonnage, he said, was only of a temporary nature, being flush production in new fields from which adequate pipe line facilities are not provided.

Mr. Crane brought out a fact not generally recognized by the oil industry, that water movement of petroleum and its products in domestic use has already outstripped the rail movement. In 1926 this water movement reached 93,000,000 tons, he said, while the tonnage moved on the railroads was about 60,000,000 tons.

IN TERMS of carloads of 30 tons per car, Mr. Crane pointed out, here were 3.100,000 tank car loads potential traffic, which under existing economic and rate conditions the railroads were unable to attract to their rails.

Mr. Crane said that, while it was impossible to ascertain the exact tonnage of petroleum products moving by tank wagon, there was no doubt this tonnage was increasing.

"Unquestionably, each year sees an expansion of the era of distribution by this means, a constant and increasingly serious challenge to the railroads for the short haul traffic," he said. "It requires no great vision to picture the tank truck in future years as a competitor with the railroads for moderate hauls, say up to 100 miles. The tank wagon transportation plant is already provided in the fleets necessary for distribution in the large cities."

Mr. Crane outlined three steps thinking of eastern territory principally, which would secure back for the railroads some of this lost traffic.

First, general rates low enough to attract oil traffic to their lines.

Second, special low rates, in the nature of raw material rates, for unfinished oils which move between refineries, generally for relatively short distances, to undergo further refining.

Third, special low rates applying from western Pennsylvania and Ohio plants on oil products moving to seaboard for export. Western refiners have secured such rates from the Mid-Continent field to the Gulf ports, Mr. Crane pointed out. However, he said, the "export safety valve," is practically closed to Ohio and western Pennsylvania plants.

Brown Speaker at Gasoline Meeting in California

LOS ANGELES, Sept. 22.—Dr. George Granger Brown, assistant professor of chemical engineering, University of Michigan, and Director of Research for the Natural Gasoline Association of America, will attend the fall meeting of the California Natural Gasoline Association to be held at the Biltmore Hotel Nov. 13 and 14, according to announcement made by George L. Ratcliffe, president of the local association, at its September meeting held in Los Angeles, Sept. 13.

Mr. Ratcliffe announced that the program for the fall meeting had not been completed but hoped to have it ready for publication in another week.

Three papers were given at the monthly meeting, and were as follows: "Table of Physical Constants of Hydrocarbons Occurring in Natural Gas," by Walter Podbielniak, Ph. D., Research Chemical Engineer; "The Importance of Obtaining Representative Samples of Gas and Gasoline for Analysis," by L. O. Warner of Barton, Manning & Warner, and "The Effect of Oil Temperatures on Absorption Efficiency," by A. J. L. Hutchinson of the Engineering Research & Equipment Co.

New Patents

September 11, 1928

REFINING

Apparatus for Cracking Oil—Gustav Egloff, Chicago, Ill., and William R. Howard, Washington, D. C., assignors to Universal Oil Products Company, Chicago, Ill. Filed Mar. 23, 1921. No. 1,683,766.

Process of Treating Oils—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed Mar. 24, 1924. No. 1,683,767.

Distillate Distributor for Hydrocarbon Distillation Systems—Francis M. Hess, Chicago, Ill. Filed Apr. 29, 1922. No. 1,683,778.

Process for Treating Residual Oils—Lyman C. Huff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed May 26, 1924. No. 1,683,826.

Art of Decolorizing, Clarifying, and Purifying Petroleum Oils—Harold Lester Kauffman and Irwin Arthur Clark, Parco, Wyo., assignors to Harold L. Kauffman. Filed Nov. 28, 1924. No. 1,684,035.

Process of Refining Oils—Sijbren Tijmstra, Madison County, Ill., assignor to Roxana Petroleum Corporation. Filed Dec. 6, 1926. No. 1,684,159.

PRODUCTION

Well Tubing—John G. Robinson, Blackwell, Okla. Filed Aug. 9, 1926. No. 1,683,629.

Oil-Well Apparatus—George D. Watson, Torrance, Calif. Filed Jan. 11, 1926. No. 1,683,745.

Casing Perforator—Millard Sumter Black, Huntington Park, Calif. Filed Jan. 9, 1925. No. 1,683,858.

Shock Absorber for Drilling Rigs—Joseph Becker, Shelby, Mont., assignor to John Nisbet and Harry C. Woodward, Shelby, Mont. Filed Apr. 28, 1927. No. 1,683,948.

Coring Device—Reid B. Grainger, Redondo Beach, Calif., assignor, to Elliott Core Drilling Company. Filed June 1, 1927. No. 1,684,089.

Bridging Plug—Ralph D. Fisher and Edwin M. Reardon, Long Beach, Calif. Filed Aug. 24, 1927. No. 1,684,266.

Combination Working Barrel and Sand Trap—Elton L. Boyd and James T. Johnson, Healdton, Okla. Filed Oct. 18, 1927. No. 1,684,295.

MISCELLANEOUS

Method of Treating Oil Shales and Other Bituminous Materials—William W. Blaisdell, New York, N. Y. Filed May 3, 1923. No. 1,684,007.

Atomizable Mobile Fuel Product—Arthur W. Burwell, Niagara Falls, N. Y., assignor to Alox Chemical Corporation, New York, N. Y. Filed Mar. 2, 1927. No. 1,684,125.

Oil Reclaimer—Arnold L. Henny, Portland, Oreg. Filed Aug. 12, 1925. No. 1,684,270.

Pressure and Vacuum Relief Valve—James L. Gray, Port Arthur, Tex., assignor to E. Bruce, Goose Creek, Tex. Filed Jan. 13, 1925. No. 1,684,377.

I See By the Paper - -

Socony Is Victor In India—India Tariff Board, in report submitted to Government of India, has decided oil industry of India requires no further import tariff to protect it from competition of imported oils. Royal Dutch Shell was credited with instigating tariff inquiry in retaliation for S. O. New York's policy of supplying India market with Russian oil purchased from Soviet Government. Tariff Board found that Socony had not taken initiative anywhere in cutting prices.—N. Y. World, Sept. 13.

Oil Fuel Use Increased—Oil fuel is now used for 36.57 per cent of total gross tonnage of ships listed in Lloyd's Register Book, as com-

Distillation—Fractionation

Seventy-two articles in the last 52 issues of NATIONAL PETROLEUM NEWS have been published on the subject of increasing yield of products — improving their quality — reducing manufacturing costs—equipment design—

All these phases of profitable refining are discussed from many angles. Various types of equipment and various operating methods actually in profitable use are described.

This is an average of one and five-tenths articles per issue on this single angle of refinery operation. For your file reference we list them below:

1928

How a refinery cut costs in half Sept. 19, p. 22

Gravity, volume corrections for temperature Sept. 5, p. 110; Sept. 19, p. 74

Gas and gasoline analysis in plant control Sept. 5, p. 79

Narrow distillation range oils best for absorption Aug. 8, p. 54

Distillation test in determining vapor pressure Aug. 1, p. 58

Light fractions from stabilizer July 25, p. 21

How important oil tests are applied Aug. 22, p. 81; Aug. 15, p. 73; Aug. 1, p. 80; July 25, p. 29; July 18, p. 26; July 11, p. 60

Improving efficiency of shell stills July 11, p. 69

Gasoline recovery from gases, Bayer charcoal process July 4, p. 67; June 27, p. 97

Zilwaukee refinery adapted to small field June 20, p. 23

Vertical steam still for fat oil distillation June 6, p. 37

Saves $80,000 yearly with auxiliaries June 6, p. 32

Fractionation theory and practice May 23, p. 102

Careful refining and selling build trade May 23, p. 56

Distillation process control by laboratory May 16, p. 57

Cutting costs in steam raising May 16, p. 49; May 9, p. 49; May 2, p. 17

New types of distilling equipment May 9, p. 76

Halves fuel costs with old shell still May 2, p. 81

Pipe still economy in making Penna. lubes May 2, p. 56

Good products at low cost Apr. 25, p. 85; Apr. 18, p. 61; Apr. 11, p. 54

Careful fractionation cuts costs Apr. 25, p. 48

Neutralizing lube oils with ammonia Apr. 11, p. 111

Bigger profits for refiners in 1928 Apr. 11, p. 28; Apr. 4, p. 25; Mar. 28, p. 28; Mar. 14, p. 42

Natural gasoline industry must make new products Apr. 4, p. 74; Feb. 1, p. 49; Jan. 25, p. 17

Technical control of refinery processes Mar. 14, p. 144; Mar. 7, p. 51; Feb. 29, p. 76

Shell still as big volume distilling unit Mar. 7, p. 60; Feb. 29, p. 63

New device burns sludge coke under boilers Mar. 7, p. 101

Refinery engineers discuss combustion-distillation Feb. 29, p. 21

Acid sludge disposal unsolved refinery problem Feb. 22, p. 75

Method for removing all wax from lube oil Feb. 8, p. 22

Increasing still capacity without capital outlay Jan. 25, p. 73

New equipment results in first profit in 7 years Jan. 25, p. 23

1927

Continuous distillation from crude to pitch Dec. 28, p. 53

Makes refinery by-products pay profit Dec. 21, p. 19

By-products open field for natural gasoline Dec. 14, p. 51

Advantages of continuous flash vacuum distillation Dec. 14, p. 78

Sulfur determination, revised test methods Nov. 30, p. 46

Detection of sulfur in petroleum and distillate Nov. 23, p. 53

Economies in internal flue stills Nov. 16, p. 93

Advantages of continuous tube heaters over shell Nov. 9, p. 99

Re-running has place in refinery Nov. 2, p. 55

Circulating oil increases throughput Oct. 5, p. 49

Absorption plant pays its way in gasoline Oct. 5, p. 87

Temperature control in refining operations Sept. 21, p. 111

Methods of temperature control Sept. 21, p. 119

Petroleum fractionation Sept. 21, p. 125

Recent pipe still development Sept. 21, p. 131

Crude distillation equipment improvements Sept. 21, p. 139

Remodeling shell still battery Sept. 21, p. 179

Temperature and pressure instruments Sept. 21, p. 188

Improving natural gasoline manufacturing Sept. 21, p. 213

Automatic controllers for natural gasoline Sept. 21, p. 215

Gasoline recovery by charcoal method Sept. 21, p. 251

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pared with 3.1 per cent in 1914, according to the Department of Commerce, and 60.75 per cent are operated by coal as compared with 88.84 per cent in 1914. Total of 2,933 vessels, of 5,432,302 tons, are fitted with internal combustion engines.—N. Y. Journal of Commerce, Sept. 10.

Sinclair Places Pipe Order—Sinclair Pipe Line Co. has placed orders for 51,000 tons of steel pipe to be used for additional gathering lines and increasing capacity of its trunk line to Chicago by 25,000 barrels to 75,000 barrels daily. Half the business went to National Tube Co. and rest divided between Jones & Laughlin and Bethlehem Steel.—N. Y. World, Sept. 12.

S. O. New Jersey Official Dies—Frank Ten Eyck French, Paris, president of Bedford Petroleum Co., subsidiary of S. O. New Jersey, died Sept. 11 at Fifth Avenue Hospital, New York, following operation for intestinal disorder.—N. Y. Herald-Tribune, Sept. 12.

Producer Weds Famed Beauty—Thomas Gilcrease, Oklahoma producer, has just returned from a month's honeymoon at Big Bear Lodge near Jackson, Wyo., bringing Mrs. Gilcrease to his home in Tulsa. The bride was Norma Smallwood, "Miss Tulsa" who won the title of "Miss America" at Atlantic City in 1926.—Gary Post-Tribune, Sept. 10.

Obstinate Horseman Capitulates—Edward A. Taglie who until this week maintained a horseshoeing establishment in the Chicago "Loop" converted his equestrian emporium into a garage. The shop was in an alley back of 119 North Wells street near the Bismarck hotel. Mr. Taglie gave as his reason for quitting that he got a piece of steel in his eye.—Chicago Journal, Sept. 14.

New Colombia Oil Laws Proposed—New petroleum regulations providing that all national land shall be exploited by semi-official companies have been introduced in Colombian Congress by Minister of Industries. Government reserves right to construct all trunk pipe lines through semi-official companies, these lines to become exclusive property of nation through amortization over a 15-year period.—N. Y. Journal of Commerce, Sept. 11.

Petroleum Congress Proposed—Oil jobbers of Illinois, Indiana, Michigan and Wisconsin are being questioned by H. A. Rohde, secretary of the Wisconsin Petroleum association, as to their wishes with regard to a four-state convention in Chicago this fall. The jobbers of Missouri, Iowa, Nebraska and Kansas have held a successful joint meeting for several years.—The Thunder Bird, September.

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended September 21 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Sept. 21	Total Week Ended Aug. 24
Plants Reporting	12	29	29	12	82	82
Da. Av. Cap. (bbls.)	92,000	160,200	130,100	54,900	437,200	437,200
Da. Cracking Capacity	30,700	52,600	17,200	22,700	123,200	123,200
Da. Av. Crude Runs	75,258 + 1.5	122,431 + 4.6	90,147 — 6.6	62,826 + 7.8	350,662 + 1.4	356,464
Da. Av. Other Oils	7,860 — 8.1	2,593 — 52.6	5,989 — 8.3	2,113 +107.0	18,555 — 14.0	17,941
GASOLINE—Gallons						
Stocks, Sept. 14	7,623,000	21,631,000	13,555,000	5,004,000	47,813,000	46,770,000
Prod. 9-14 to 9-21	10,851,000 — 1.5	18,909,000 — 1.8	10,408,000 — 1.6	5,800,000 + 5.6	45,968,000 — 0.8	45,561,000
Ship. 9-14 to 9-21	11,987,000 + 1.3	17,773,000 — 6.5	11,473,000 + 5.2	5,106,000 + 14.1	46,339,000 + 0.3	45,070,000
Stocks, Sept. 21	6,487,000 — 14.9	22,767,000 + 5.3	12,490,000 — 7.9	5,698,000 + 13.9	47,442,000 — 0.8	47,261,000
Ratio Sales to Prod.	110.5%	94.0%	110.2%	88.0%	100.8%	98.9%
KEROSENE—Gallons						
Stocks, Sept. 14	7,958,000	3,452,000	1,431,000	303,000	13,144,000	13,314,000
Prod. 9-14 to 9-21	2,371,000 + 10.2	2,737,000 — 6.7	1,699,000 + 5.9	256,000 + 44.6	7,053,000 + 2.9	7,206,000
Ship. 9-14 to 9-21	2,533,000 + 14.8	2,558,000 — 3.9	1,576,000 + 13.0	307,000 + 35.2	6,974,000 + 7.4	7,557,000
Stocks, Sept. 21	7,796,000 — 2.0	3,631,000 + 5.2	1,554,000 + 8.6	252,000 — 16.8	13,233,000 + 0.7	12,963,000
Ratio Sales to Prod.	106.8%	93.5%	92.8%	119.9%	98.7%	104.9%
STOVE DISTILLATE—Gallons						
Stocks, Sept. 14	2,031,000	3,293,000	517,000	79,000	5,920,000	5,880,000
Prod. 9-14 to 9-21	158,000 + 5.3	802,000 + 29.4	205,000 — 17.3	116,000 — 12.8	1,281,000 + 11.3	674,000
Ship. 9-14 to 9-21	311,000 +207.9	741,000 + 25.6	56,000 — 89.1	106,000 — 22.6	1,214,000 — 9.6	491,000
Stocks, Sept. 21	1,878,000 — 7.5	3,354,000 + 1.9	666,000 + 28.8	89,000 + 12.7	5,987,000 + 1.1	6,063,000
Ratio Sales to Prod.	196.8%	92.4%	27.3%	91.4%	94.8%	72.8%
GAS OIL—Gallons						
Stocks, Sept. 14	6,546,000	38,327,000	4,730,000	6,287,000	55,890,000	57,341,000
Prod. 9-14 to 9-21	1,839,000 — 0.5	2,449,000 + 11.9	1,538,000 — 3.1	2,241,000 + 3.8	8,067,000 + 3.6	7,170,000
Ship. 9-14 to 9-21	1,940,000 + 17.5	2,212,000 + 12.1	1,296,000 — 10.6	2,254,000 + 9.3	7,702,000 + 7.9	9,540,000
Stocks, Sept. 21	6,445,000 — 1.5	38,564,000 + 0.6	4,972,000 + 5.1	6,274,000 — 0.2	56,255,000 + 0.7	54,971,000
Ratio Sales to Prod.	105.5%	90.3%	84.3%	100.6%	95.5%	133.1%
FUEL OIL—Gallons						
Stocks, Sept. 14	22,129,000	57,602,000	73,899,000	19,251,000	172,881,000	163,164,000
Prod. 9-14 to 9-21	7,579,000 + 0.4	8,665,000 + 7.4	12,826,000 — 8.0	9,327,000 + 10.1	38,397,000 + 1.0	40,431,000
Ship. 9-14 to 9-21	6,041,000 — 11.8	8,445,000 — 16.9	12,675,000 + 9.6	7,481,000 — 18.9	34,642,000 — 8.4	36,254,000
Stocks, Sept. 21	23,667,000 + 6.9	57,822,000 + 0.4	74,050,000 + 0.2	21,097,000 + 9.6	176,636,000 + 2.2	167,341,000
Ratio Sales to Prod.	79.7%	97.5%	98.8%	80.2%	90.2%	89.7%

Gasoline Produced by Various Methods, Week Ended September 21

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,313,000	67.4	12,225,000	64.7	8,328,000	80.0	2,501,000	43.1	30,367,000	66.0
Cracked	2,925,000	27.0	5,615,000	29.7	1,586,000	15.2	2,688,000	46.4	12,814,000	27.9
Natural	613,000	5.6	1,069,000	5.6	494,000	4.8	611,000	10.5	2,787,000	6.1
Total	10,851,000		18,909,000		10,408,000		5,800,000		45,968,000	

+ or — columns are % change from previous week.

Gasoline Output Lowered While Crude Charges Gain

Staff Special—By Telegraph
TULSA, Sept. 24

GASOLINE shipments from 82 Mid-Continent refineries reporting weekly operations to NATIONAL PETROLEUM NEWS for the week ended Sept. 21 were virtually unchanged from the total for the week ended Sept. 14. Shipments for the third week of September totaled 46,339,000 gallons which is an increase over the previous week of 115,000 gallons.

Gasoline production meanwhile was reduced approximately 300,000 gallons for the field as a whole, the total production being 45,968,000 gallons. This reduction was made despite an increase of approximately 5,000 barrels daily average in crude charges to stills. Charges of other oils, however, were reduced approximately 3,000 barrels daily average.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Sept. 21. Change in stocks figured from Aug. 24.

	Gallons
GASOLINE	
Production	183,963,000
Shipments	183,782,000
Net change in stocks	+181,000
Ratio sales to production	99.9%
KEROSENE	
Production	28,011,000
Shipments	27,741,000
Net change in stocks	+270,000
Ratio sales to production	99.0%
STOVE DISTILLATE	
Production	4,608,000
Shipments	4,684,000
Net change in stocks	—76,000
Ratio sales to production	101.7%
GAS OIL	
Production	31,893,000
Shipments	30,609,000
Net change in stocks	+1,284,000
Ratio sales to production	96.0%
FUEL OIL	
Production	149,163,000
Shipments	139,868,000
Net change in stocks	+9,295,000
Ratio sales to production	93.8%

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1213 W. 3rd Street Cleveland, Ohio

Gasoline stocks for the entire field were reduced approximately 370,000 gallons to a total on hand Sept. 21 of 47,442,000 gallons. At the current rate of shipments these stocks represent only 7.3 days' supply. Stocks on hand at the same time a year ago represented 9.5 days' supply at the current rate of shipments at that time which totaled 40,367,000 gallons.

The draft on stocks in Kansas and Texas was responsible for the field as a whole showing a reduction. Kansas refiners reduced production 1.5 per cent while shipments increased 1.3 per cent which resulted in a draft on stocks amounting to 14.9 per cent. Oklahoma refiners reduced gasoline production 1.8 per cent while their shipments fell off 6.5 per cent. Stocks accordingly were increased 5.3 per cent. Texas refiners reduced production 1.6 per cent while shipments gained 5.2 per cent causing stocks to be reduced 7.9 per cent. Arkansas and Louisiana refiners increased production 5.6 per cent while their shipments increased 14.1 per cent but their production still was at such a level that the increase in shipments could not balance the production, and stocks accordingly were increased 13.9 per cent.

For the past four weeks gasoline production and shipments have been virtually on an even keel. Production during the period has totaled 183,963,000 gallons while shipments have been 183,782,000 gallons, causing an increase in stocks of only 181,000 gallons.

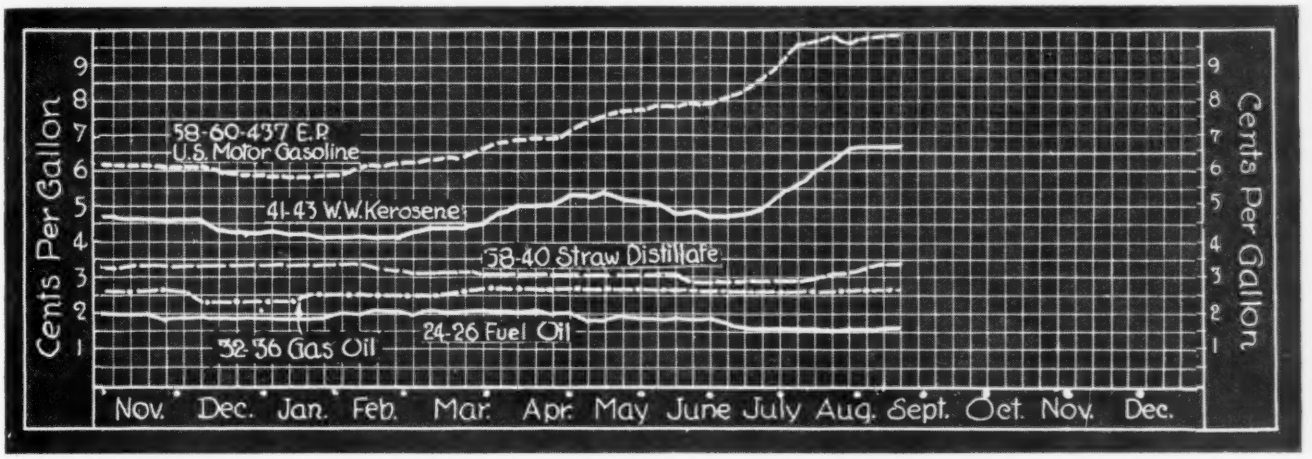
Production of kerosene was increased for the field as a whole 2.9 per cent to 7,063,000 gallons, while shipments were increased 7.4 per cent to 6,974,000 gallons. Stocks were increased only 80,000 gallons. Kansas and the Louisiana and Arkansas refiners drew on stocks while the Oklahoma and Texas refiners added 170,000 gallons and 120,000 gallons respectively to stocks.

Shipments of stove distillate were lower than for the week ended Sept. 14, while production was increased slightly. Stocks accordingly were increased approximately 60,000 gallons. Kansas refiners were the only ones to draw any distillates from storage. This was due to an increase in shipments while production was virtually unchanged.

Gas oil production increased 3.6 per cent while shipments increased 7.9 per cent. Stocks for the field were increased 300,000 gallons or 0.7 per cent.

Fuel oil production was virtually unchanged while shipments were over 3,000,000 gallons lower, causing an increase in stocks of 3,800,000 gallons.

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
58-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
Cents Per Gallon

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

Crude Stocks Gain In August

NEW YORK, Sept. 24.—Following a decrease in crude stocks for three consecutive months stocks increased again in August and gasoline stocks decreased, according to a preliminary report of American Petroleum Institute.

Pipe line and tank farm gross domestic crude stocks east of Rockies increased 1,322,000 barrels in August, compared with a decrease of 749,000 barrels in July. Stocks stood at 300,605,000 barrels east of the Rockies on Aug. 31.

Gasoline stocks decreased 926,000 barrels at refineries covering approximately 88 per cent of the company's operating capacity east of California. This compares with a decrease of 2,867,000 barrels in July and decreases of over 2,000,000 barrels in June and May.

A net decrease of 797,000 barrels in all refinery stocks occurred in August compared with a net decrease of 892,000 barrels in July.

Kerosene stocks decreased 16,000 barrels in August, compared with a gain of 56,000 barrels in July.

Gas and fuel oil stocks gained 1,607,000 barrels in August, compared with a 2,022,000-barrel gain in July and lubricants stocks gained 39,000 compared with a decrease of 77,000 barrels in July.

Refinery stocks of foreign and domestic crude oil decreased 1,339,000 barrels in August, compared with decrease of 269,000 barrels in July.

July Gallonage 11.02% Larger Than Year Ago

CLEVELAND, Sept. 24.—Gasoline consumption as indicated by tax returns, was 11.02 per cent larger in July, 1928, than in July, 1927, in 36 states and the District of Columbia. The tax figures were collected by the American Petroleum Institute.

July, 1928, gallonage, was smaller than July, 1927, gallonage in only Iowa and Nevada. In the former state the decline was approximately 14 per cent and in the latter 2.34 per cent. The fall in gallonage in Florida was halted, that state reporting 6.38 per cent more gasoline taxed in July than a year before. Florida's gallonage had been slipping steadily from the 1926 peak.

The largest gain in gallonage was in Kansas where the increase was 7,771,000 gallons. Michigan, Texas and Ohio also reported large gains.

The gallonage in the various states and the percentages of change of 1928 over 1927, follow:

	July, 1928 gallons	July, 1927 gallons	Per cent change 1928 from 1927
Alabama	15,679,000	13,599,000	+15.30
Arizona	4,810,000	3,230,000	+48.92
Arkansas	11,493,000	9,020,000	+27.42
Colorado	15,025,000	13,912,000	+ 8.00
Delaware	3,117,000	2,284,000	+36.47
District of Columbia	5,820,000	5,260,000	+10.65
Florida	18,540,000	17,428,000	+ 6.38
Georgia	19,688,000	16,507,000	+19.27
Idaho	5,435,000	4,927,000	+10.31
Indiana	38,870,000	33,020,000	+17.72
Iowa	30,167,000	35,075,000	—13.99
Kansas	39,618,000	31,847,000	+24.40
Kentucky	13,339,000	12,298,000	+ 8.46
Louisiana	14,243,000	12,884,000	+10.55
Michigan	71,087,000	65,157,000	+ 9.10
Minnesota	34,732,000	31,909,000	+ 8.85
Missouri	32,574,000	29,703,000	+ 9.66
Nebraska	20,074,000	17,831,000	+12.58
Nevada	1,542,000	1,579,000	— 2.34
New Hampshire	6,124,000	5,797,000	+ 5.64
New Mexico	3,450,000	2,861,000	+20.59
North Carolina	21,696,000	18,645,000	+16.36
North Dakota	10,607,000	8,507,000	+24.68
Ohio	83,521,000	77,973,000	+ 7.11
Oklahoma	28,046,000	24,435,000	+14.78
Oregon	15,700,000	14,505,000	+ 8.24
Rhode Island	7,213,000	6,509,000	+10.81
South Dakota	10,335,000	8,047,000	+28.43
Tennessee	16,151,000	14,451,000	+11.76
Texas	60,525,000	53,255,000	+13.65
Utah	4,951,000	4,699,000	5.36
Vermont	4,753,000	4,228,000	+12.42
Virginia	17,545,000	16,099,000	+ 8.98
Washington	23,498,000	21,119,000	+11.26
West Virginia	11,387,000	11,327,000	+ 0.53
Wisconsin	40,131,000	36,037,000	+11.36
Wyoming	3,863,000	3,387,000	+14.05
Total	765,349,000	689,351,000	+11.02
Daily average	24,689,000	22,237,000	+11.02
Increase over previous year:			
Amount	75,998,000	.....	
New Jersey	42,919,000	.....	
Connecticut	.....	.....	

California Gasoline Stocks Lower

LOS ANGELES, Sept. 22.—Stocks of all petroleum products on the Pacific Coast were reduced 957,459 barrels in August, according to the San Francisco office of American Petroleum Institute.

Stocks of gasoline were reduced 1,617,874 barrels to 11,290,675 barrels. Stocks of heavy crude including all grades of fuel were decreased 607,718 barrels to total of 95,810,506 barrels. Refinable crude stocks increased 370,721 barrels. Naphtha distillates, and miscellaneous stocks increased.

Daily average production of crude in California in August was 627,255 barrels, indicating that weekly estimates had been more than 6000 barrels high. The error came largely from Long Beach where pipe line runs were smaller than had been expected.

Fifty-seven oil producers were completed. Total of 468 wells were drilling at end of month.

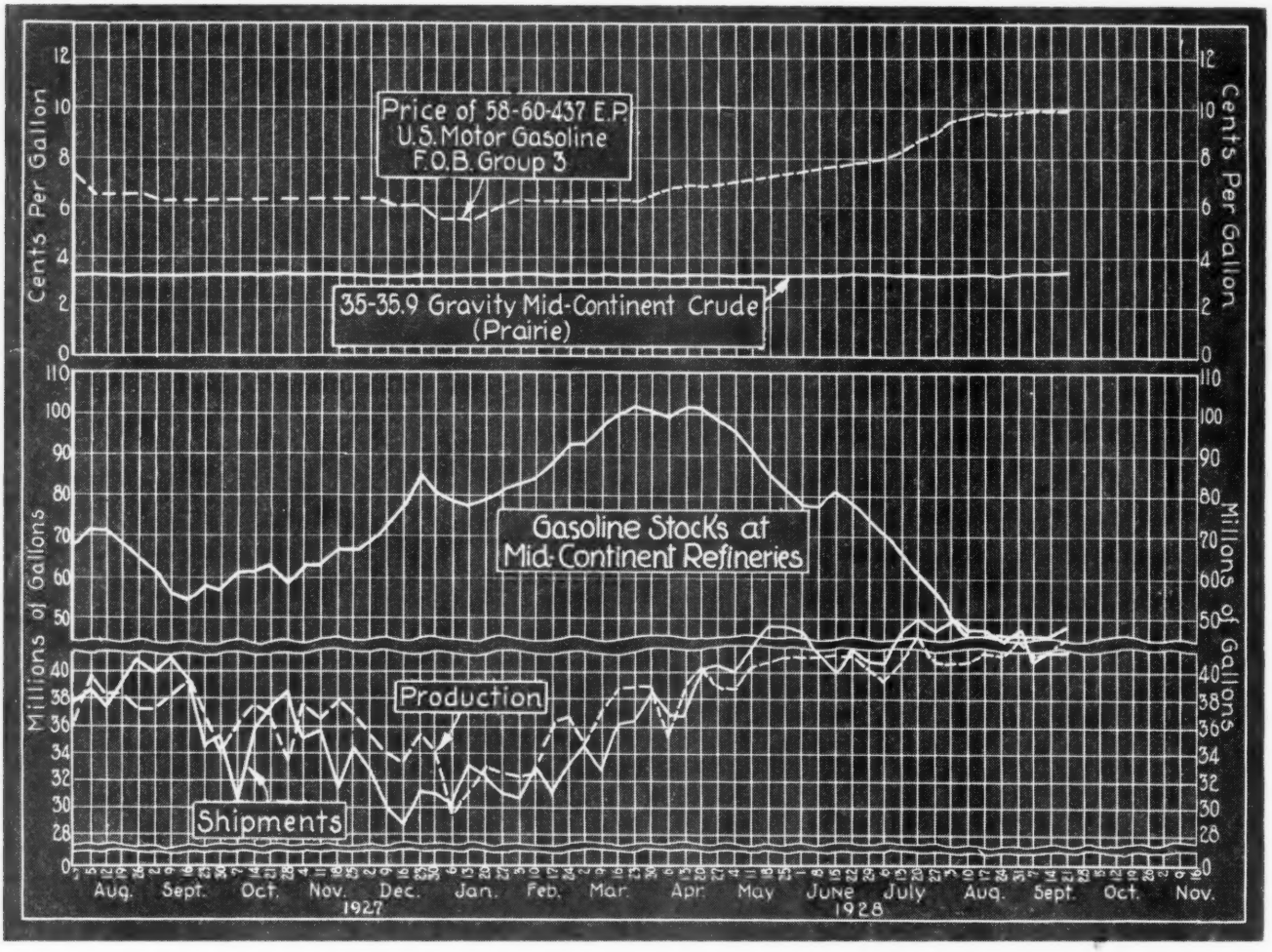
Keen & Woolf Plant Is Sold to Gulf

HOUSTON, Sept. 20.—After having been shut down for more than a year, the Houston ship channel lubricant refinery of the Keen & Woolf Oil Co., Shreveport, has been sold to the Gulf Refining Co. The property, which consists of 37 acres fronting 650 feet on the ship channel, will be used as a terminal.

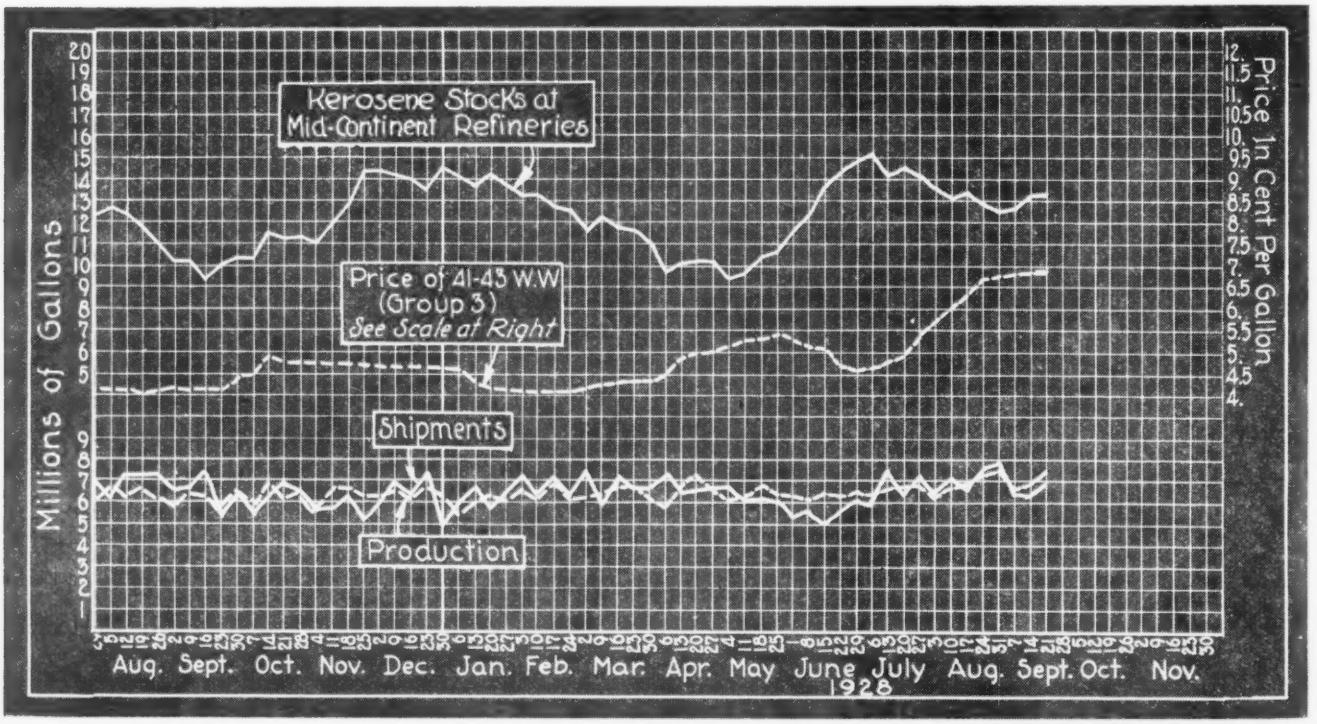
LOS ANGELES, Sept. 21.—Donald Forker has resigned from the Los Angeles office of Lloyd & Thomas and Logan to become promotion and publicity manager of the Union Oil Co. of California.

Barometer of Mid-Continent Refinery Market—Week Ending September 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 82 Plants to National Petroleum News


Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Production
Shipments
Millions of Gallons
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on the opposite page


Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cent Per Gallon
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.
1928

Empire Will Build Iowa Refinery

TULSA, Sept. 22.—The Empire Oil & Refining Co. has announced plans for the erection of a refinery in the upper Mississippi valley, probably at some point such as Davenport or Keokuk, Iowa. The plant will have an initial capacity of 10,000 barrels per day and an ultimate capacity of 20,000 barrels. It will be a skimming and cracking plant.

To supply the plant with crude a 10-inch welded line will be laid from Augusta, Kan., the present northern terminus of the Empire lines which extend through Oklahoma, Kansas and north Texas fields. The pipe line will have an ultimate capacity of 40,000 barrels per day.

The Empire now has three plants in Oklahoma and one in Texas with a combined capacity of 20,000 barrels per day. At Okmulgee and Ponca City the company has lubricating oil plants in addition to cracking facilities. The Cushing, Okla., and Gainesville Tex., plants are skimming and cracking plants. The Cities Service organization, of which Empire is a part, also has three eastern plants at Titusville, Philadelphia and East Braintree, Mass.

With a refinery in the heart of the growing consuming district in the northern port of the Mississippi valley the Empire will be in a position to serve its large station system economically and quickly.

Cities Service Oil Co. Buys Illinois Jobber

CHICAGO, Sept. 22.—Announcement was made in Chicago this week that the Cities Service Oil Co., Henry L. Doherty interest, has purchased the Osborne Oil Co. of Rockford, Ill. The consideration was not made known. The Rockford jobber had 28 service stations and did an extensive tank wagon business in 25 counties of northern Illinois and southern Wisconsin.

Management of the properties involved in the transfer will not change. William J. Osborne will continue as president and general manager. Eric Ekstrom as vice-president, George Mundy treasurer and E. R. Lawson secretary. The acquisition of the Osborne business was confirmed by Harry D. Frueauff, vice-president of Cities Service.

Will Make Galena Oils

LOS ANGELES, Sept. 21.—Standard Oil Co. of California has concluded arrangements to manufacture and market on the Pacific coast, the railroad oils and greases of the Galena Signal Oil Co. under the Galena trademark.

$150.00 for this Convertible TRUCK TANK

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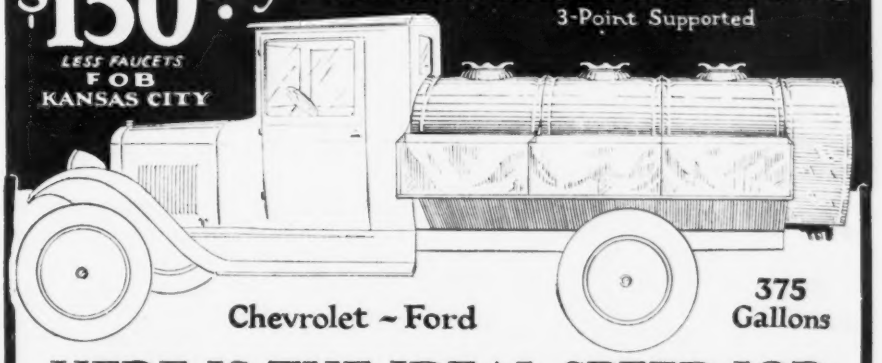

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"If you were to wire me for Mid-Continent gasoline prices I would phone a member of the OILGRAM staff, and my reply to you would be the GIST OF WHAT HE TOLD ME. The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day.

THEY KNOW THEIR BUSINESS"

You, too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers. The service costs only $25 a quarter, or $75 a year, payable in advance. Approximately 30 cents a day—less than the cost of one wire or one phone call.

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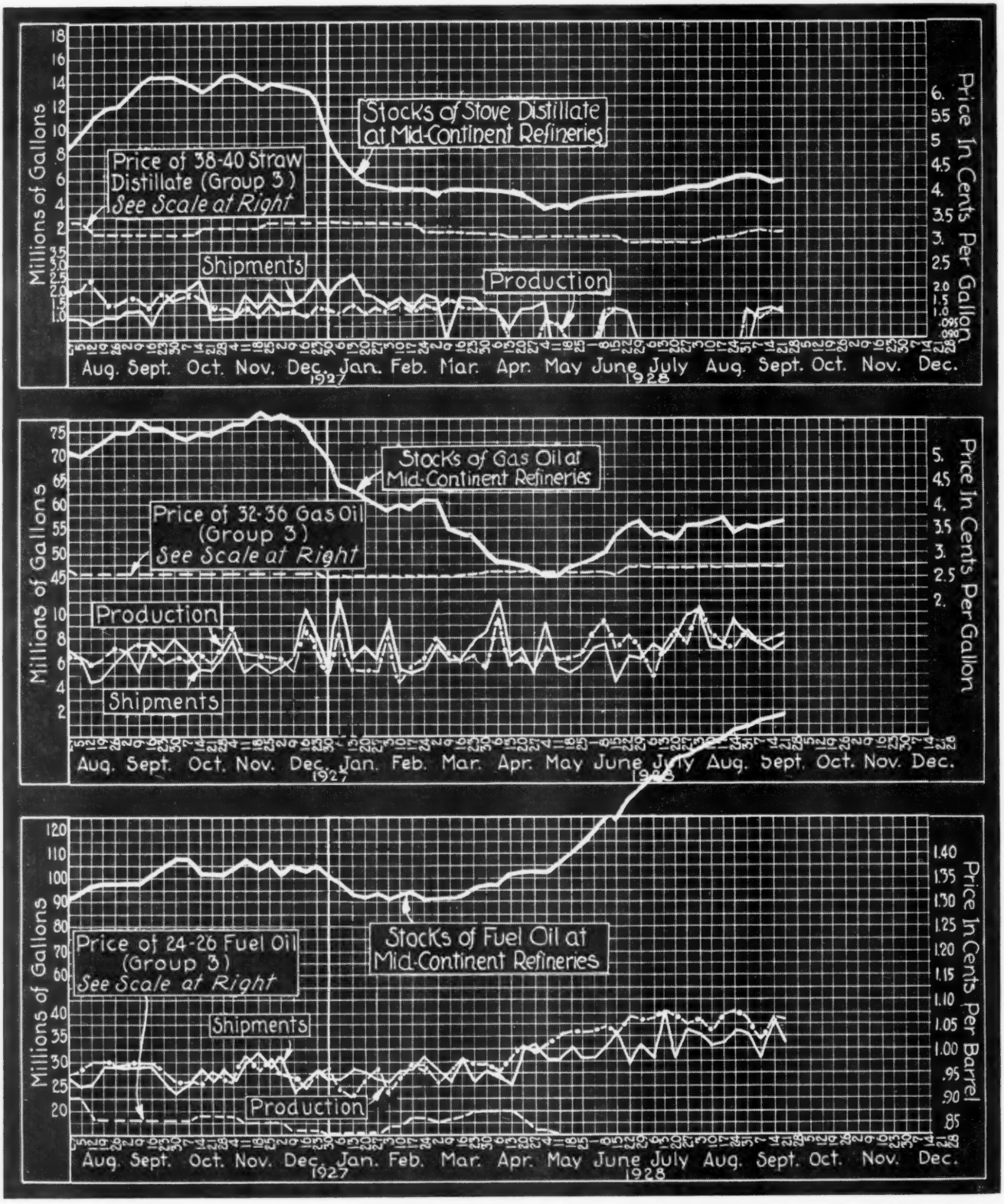
CHICAGO—35 East Wacker Drive

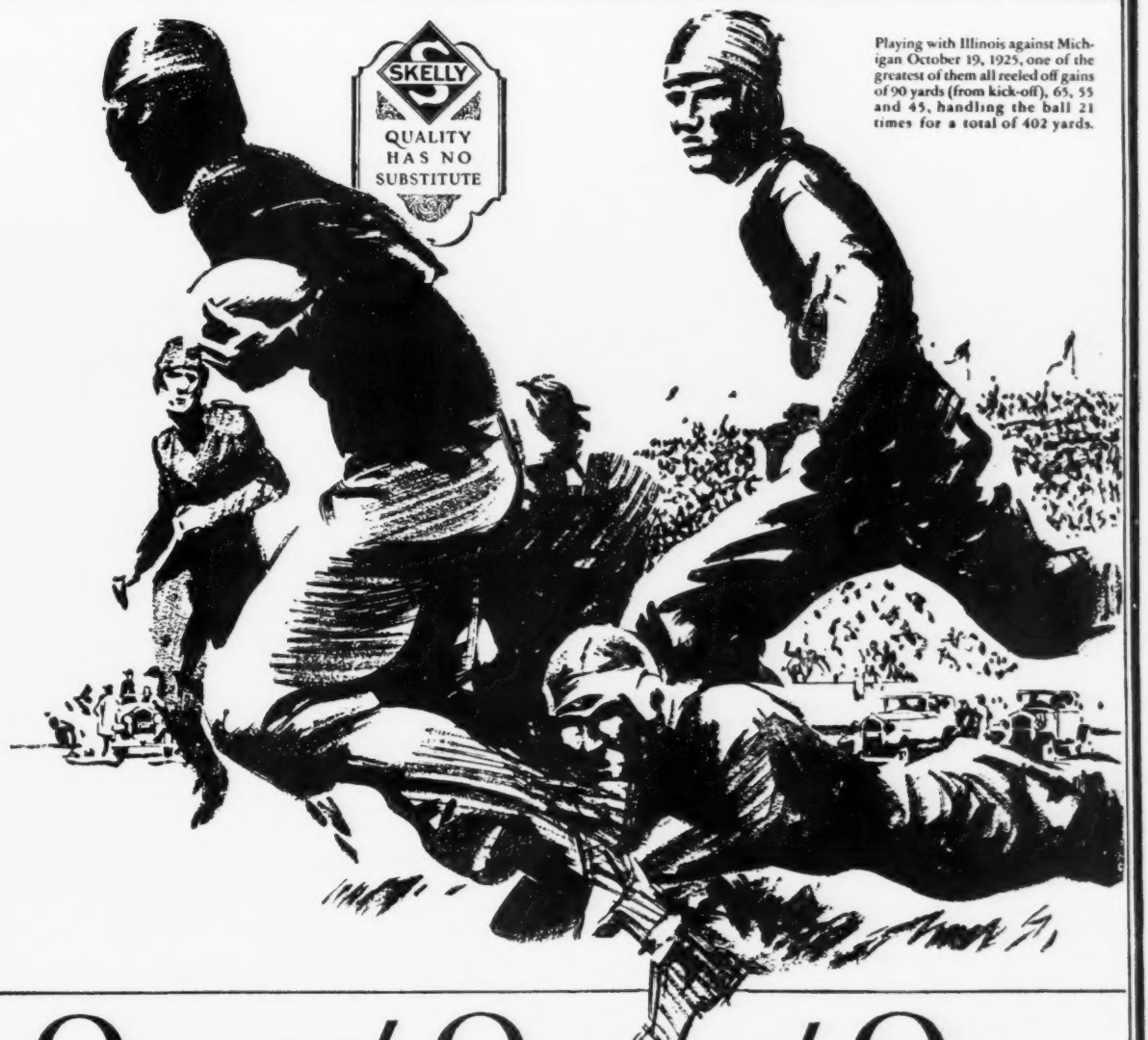
NEW YORK—342 Madison Avenue

CLEVELAND—1213 West Third St.

Barometer of Mid-Continent Refinery Market—Week Ending September 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 82 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928



Playing with Illinois against Michigan October 19, 1925, one of the greatest of them all reeled off gains of 90 yards (from kick-off), 65, 55 and 45, handling the ball 21 times for a total of 402 yards.

On and On and On

It's the extra yardage he can gain that makes one half-back better than another. And the extra protection a motorist gains from TAGOLENE Motor Oil gives him confidence and adds to the joy of driving. TAGOLENE will carry him on and on and on—stand up under the severest kind of abuse. It s made to stand punishment, and so it's a safe buy for everyone. Sell to your trade an oil which will carry on and on and on without flinching—TAGOLENE.

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Mid-Continent Natural Gasolines Rise; Refined Oils Are More Stable

Staff Special
TULSA, Sept. 22

AN IMPROVEMENT in the Mid-Continent refinery market was noted the third week of September. While gasoline demand was generally unchanged, much of the goods quoted at lower prices from areas other than Group 3 had been taken up and price ranges had narrowed more in line with the Oklahoma quotations.

The situation in sections other than the Mid-Continent, however, was still somewhat unsettled and was being watched closely by Group refiners. Exporters were inactive in all areas.

Natural gasolines advanced a full cent with several large sales reported. Some new business from eastern points also was received in the Mid-Continent. All grades were comparatively scarce at the close of business Sept. 22.

Kerosenes were quiet and more freely offered in all areas except Louisiana and Arkansas.

Distillate orders continued to increase, while contract shipments also were larger in volume. Prices were generally unchanged. Gas oil was more active, especially the low cold test grades.

Fuel oils were quiet. Cylinder stocks, neutral oils and wax were generally unchanged.

Gasolines

The Oklahoma gasoline market was stable throughout the week. Prices on virtually all grades were unchanged. Refiners making the lower gravity gasolines reported demand was lighter as would be expected with the approach of the winter months. Demand for the higher gravities was somewhat improved, indicating that jobbers as usual in the northern states especially are preparing to furnish their customers with a more volatile gasoline for winter use.

Buyers reported most of the so-called cheap gasoline was off the market and the price structure was more nearly uniform than was the case the second week of the month. Inquiries were more numerous although spot business was only fair in most quarters. Several refiners reported receiving inquiries from buyers who have not shown any interest in the market for three or four weeks.

The Texas situation showed no change either in price or demand. Exporters were inactive and domestic business was quiet. Competition from west Texas continued to have some weight with the north Texas refiners.

Arkansas and Louisiana refiners report their gasoline demand was lighter and they have been pushing some of their goods out of their normal differential territory on a Group 3 freight basis.

Kansas refiners have had a steady gasoline demand from most of their territory and have been keeping shipments well in line with production.

Natural Gasolines

The activity in natural gasolines which developed Sept. 13, 14 and 15, gained force this week and prices for grades A and AA, the most diligently sought grades, moved above 10 cents Sept. 22.

One large manufacturer who has contracts exceeding his production, started the advance Sept. 21 when he began to obtain options and to make purchases for small quantities from several manufacturers. The buyer for another company also bought some goods. Early this week a large refiner in Texas sent a sizable order into the Mid-Continent, one company obtaining an order for 200 cars of grade AA, and one or two others getting orders for smaller amounts.

At the same time the natural gasoline division of a large Independent refining company received instructions to ship a quantity of natural gasoline to the company's Atlantic seaboard plant. The buyer attempted to obtain the goods at manufacturing centers nearer the plant but was informed the production of those plants was sold for the remainder of the month. The buyer then was compelled to seek the goods in Oklahoma or Texas. Shipments from Texas were more desirable since there is a freight advantage from that area. Only a small amount of gasoline was obtainable in Texas and the buyer had to complete his order with goods purchased in Oklahoma.

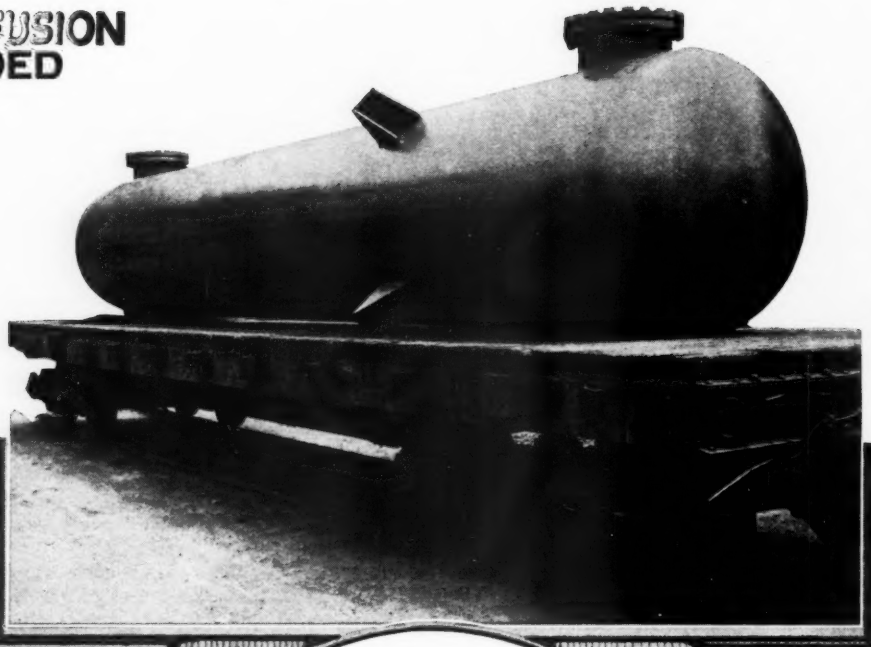
Demand from several refiners also was increased during the week, and at the close of business Sept. 22 manufacturers almost without exception reported they were completely sold up for the remainder of this month.

Kerosenes

Demand for all grades of kerosene have been lighter in Oklahoma this week. The prevailing price for 41-43 water white grade most of the week has been 6.25 to 6.50 cents. One or two refiners who have been buying small quantities on the outside, have been obtaining 6.625 cents, but by Sept. 21 had reduced their prices to 6.50 cents.

Kerosenes also have been more freely offered in north Texas and prices in that area have lost a little ground. Goods were comparatively scarce in Arkansas and Louisiana. Kansas refiners reported a fair demand in Kansas, Nebraska and Iowa where some fall plowing is being done. The

FLUID-FUSION WELDED



P.I.W. PRODUCTS

Stills—6" thick walls; Oil Refining Equipment; Pressure Vessels; Vacuum Vessels; Agitators; Chemical Processing Equipment; Oil Storage Tanks up to 120,000 barrels capacity; Elevated Water Tanks; Pressure Pipe Lines; Penstocks; Autoclaves; Kilns; Dryers; Annealing Boxes; Retorts; Digesters; Spherical Vessels; Blast Furnace Equipment; Creosoting Cylinders; Galvanizing Kettles; Exchangers; Smokestacks; Pennsylvania Tank Cars; Steel Barrels and Drums; General Steel Plate Construction.

P.I.W. Pressure Vessels

withstand the combined high pressure and high temperature of modern cracking because the Fluid-Fusion fabricating method produces a weld stronger than the plate itself and so absolutely pure and perfectly fused that the vessel reacts as one piece of metal to the stress of high pressure operation.

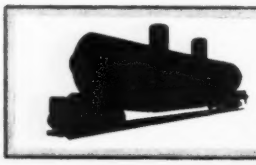
The wall thickness of Fluid-Fusion welded stills exceed 6 inches and the dimensions are set only by transportation limits.

Your nearest P.I.W. office will gladly send an engineer to consult on your high pressure problems.

BRANCH PLANT
Beaumont, Texas

P.I.W. PRODUCTS

Stills—6" thick walls; Oil Refining Equipment; Pressure Vessels; Vacuum Vessels; Agitators; Chemical Processing Equipment; Oil Storage Tanks up to 120,000 barrels capacity; Elevated Water Tanks; Pressure Pipe Lines; Penstocks; Autoclaves; Kilns; Dryers; Annealing Boxes; Retorts; Digesters; Spherical Vessels; Blast Furnace Equipment; Creosoting Cylinders; Galvanizing Kettles; Exchangers; Smokestacks; Pennsylvania Tank Cars; Steel Barrels and Drums; General Steel Plate Construction.

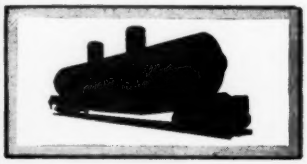


P.I.W. STEEL PLATE CONSTRUCTION

The PETROLEUM IRON WORKS COMPANY

SHARON, PA.

NEW YORK CHICAGO HOUSTON TULSA



market as a whole, however, was quiet all week.

Distillates

One Oklahoma refiner this week withdrew his offers of distillate contracts for the season. He said he now had enough contracts to take his entire production during the winter. Two or three refiners still are offering contracts but distributors for the most part already have made their arrangements for supplies. Demand for distillates continued to show steady improvement and refiners were increasing production to keep in step with increased shipments. Only small quantities of goods were reported available for prompt shipment.

Gas Oils

Demand for gas oils of low cold test was good in several sections. The Louisiana and Arkansas refiners have had a comparatively good business all week.

Inquiries for straw color zero gas oils have been received in Oklahoma but only two or three plants are making this product and their goods are all under contract. Zero cold test dark gas oil also has improved in demand although prices have been generally unchanged in all areas.

Fuel Oils

Inquiries were being received in Oklahoma for fuel oils for October delivery. Quotations apparently were unchanged from those prevailing for spot business. One buyer reported he was having a little more difficulty than usual obtaining his requirements at present price levels. Other buyers report the offers they have received from refiners would indicate the market is in a better position than it has been for some time past.

Stocks of fuel oils continue to increase steadily due primarily to the accumulation of goods at west Texas plants, as well as to competition from that area which has undoubtedly slowed up demand somewhat in other areas.

Neutrals, Cylinder Stocks, Wax

Bright stocks continued to be in large demand at prices unchanged from the previous week. One refiner said he had had more bright stock business the last two or three weeks than at any similar period in three or four years. Other refiners continued to report their stocks were low.

Neutral oils were generally unchanged in price with demand improving.

Wax was scarce at prices ranging from 5 to 5.25 cents. Inquiries were numerous but a majority of refiners are sold up for this month and a few say they will have virtually no goods to offer over October.

Chicago Resale Market

Gasoline Prices Trend Higher

Staff Special

CHICAGO, Sept. 22

BULK of sales of U. S. Motor gasoline in the Chicago resale market continued at 9.50 to 9.75 cents this week. The opinion was expressed by some sellers that they would not be surprised to see a flat 9.75 cent market by the end of September.

The larger Oklahoma refiners continued to hold their price to the jobbers at 9.75 cents. A good portion of the smaller Oklahoma refiners, who have been selling under this figure, were back in line by the end of the week. Several marketers, who have been buying Oklahoma U. S. Motor gasoline at 9.125 and 9.25 cents for resale, reported that in most cases their cost was now 9.375 or 9.50 cents.

Sellers who have been purchasing Texas gasoline also reported higher buying prices. A Chicago refiner who moved some goods at less than 9.75 cents early in the week, reported Saturday he was back to a flat 9.75-cent price.

Spot demand for U. S. Motor gasoline was not very heavy, although jobbers buying on contract were still ordering out their full quotas, most sellers reported. Several refiners and marketers reported practically all of their orders were for rush shipment. They attributed this to the fact that jobbers had let their stocks sink to a low level and were buying only for their immediate requirements. One nearby refiner said his gasoline was commanding a 0.125-cent premium because he could deliver one or two days quicker than Oklahoma shippers could.

The lack of spot buying was attributed by most sellers not to any lack of demand but to the fact that many jobbers who formerly bought on spot now have contracts. Gasoline consumption has been heavy for the season, reports from most quarters indicated. One refiner said that whereas two months ago he had approximately 40 jobbers buying on the spot market, now only five of them were buying in this manner, the others having all signed contracts for their requirements.

Not much activity was apparent in the high test gasoline market this week, although several sellers reported increased demand due to cooler weather. Prices were generally unchanged, although one or two grades were somewhat cheaper Saturday. The 60-62, 437 e.p. grade was at 9.75 to 9.875 cents Sept. 22 after moving at 9.75 to 10 cents previously. Most sellers reduced price of 60-62, 400 e.p. gasoline approximately 0.125 cent during the week. It moved at 10.125 to 10.375 cents until Sept. 20, when it was 10 to 10.375 cents, and closed Sept. 22 at 10 to 10.25 cents. Bulk of 64-66, 375 e.p. sales were at 10.75 to 11 cents all week.

Demand for kerosene was off considerably the latter part of the week, most sellers reported, and prices were fractionally lower. Most sellers were asking 6.50 cents for the 41-43 w.w. grade Sept. 17 but by Sept. 22 only one or two continued to quote this figure. Quotations Sept. 22 were about evenly distributed between 6.25 and 6.375 cents, with some few at 6.125 cents.

Cold weather throughout the Standard of Indiana territory the past week caused householders to give heed to the coming of winter and most burner oil distributors reported an active demand for their products. Demand for all grades was better with the interest centering on distillate. One seller reported his business so far this year was approximately 20 per cent higher than this time last year. Most sellers reported steady demand from industrial concerns for their fuel requirements. Prices of most grades were generally unchanged during the week.

The 38-40 straw distillate opened Sept. 17 at 3.25 cents flat and moved mostly at 3.25 to 3.375 cents thereafter. Ordinary 32-36 dark gas oil continued selling mostly at 2.50 to 2.625 cents; while the 32-36 dark zero grade moved at 2.625 to 2.75 cents and the 32-36 straw zero at 2.75 to 3 cents. The latter grade was reported comparatively scarce by most sellers.

The lighter grades of fuel oils moved at fractionally higher prices after the first of the week, while the heavier grades were generally unchanged. Fuel of 28-30 gravity opened Sept. 17 at $0.80 to $0.875 and moved at $0.825 to $0.875 thereafter. The 24-26 grade opened at $0.625 to $0.675 Sept. 17 and was at $0.65 to $0.675 the rest of the week. Low sulfur 18-22 fuel continued to move mostly at $0.575 to $0.625, while the higher sulfur 18-22 fuel moved mostly at $0.525 to $0.55.

Temperatures will be below normal the first half of next week in Standard Oil Co. of Indiana territory, but temperatures will rise in latter half, the Chicago weather bureau predicts. Not much rain is likely.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Sept. 24	Prices Sept. 17	Prices Sept. 10
52-54 Napthha	11.50 –11.75	11.50 –11.75	11.50 –12.00
54-56 Naphtha	11.75	11.75	11.50 –12.00
58-60 U.S. Motor 437 e.p.	12.00 –12.50	12.00 –12.50	12.00 –12.50
60-62 400-410 e.p. gasoline	12.25 –13.00	12.50 –12.75	12.50 –13.00
64-66 390 e.p. gasoline	13.50 –14.00	13.50 –13.75	13.625–14.00
68-70 Str-run gas. 350-360 e.p.	13.50 –16.00	13.50 –14.50	15.00
OHIO (Quotation of S. O. Ohio.)			
58-60 U.S.Motor,delivered in Ohio, tax to be added	13.00	13.25	13.25
OKLAHOMA			
48-50 540 e.p. naphtha	†9.00 – 9.125	†9.00 – 9.125	†9.00 – 9.125
50-52 450 e.p. naphtha	†9.00 – 9.125	†9.00 – 9.125	†9.00 – 9.125
56-58 450 e.p. gasoline	9.375– 9.50	9.375– 9.50	9.375– 9.50
58-60 450 e.p. gasoline	9.50	9.50	9.50
64-66 390 e.p. gasoline	10.50 –10.75	10.50 –10.75	10.50 –10.75
68-70 350-360 e.p. gasoline	11.00 –11.25	11.00 –11.25	11.00
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	9.7083	9.7475	9.7500
60-62 437 e.p. gasoline	9.9583	9.8929	9.7917
60-62 400 e.p. gasoline	10.4583	10.4375	10.3750
64-66 375 e.p. gasoline	11.0000	11.0000	11.0000

In this issue, all above weighted average prices are effective on Monday on the dates shown at the top of the columns.

KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	9.875	9.875	9.875
60-62 400 e.p. gasoline	10.50	10.50	10.50
64-66 375 e.p. gasoline	11.00 –11.125	10.75	10.75
NORTH TEXAS			
48-52 450 e.p. naphtha	†8.75	†8.75	†8.75
56-58 450 e.p. gasoline	†8.75	†8.75	†8.75
58-60 450 e.p. gasoline	†8.75 – 9.00	†8.75 – 9.00	†8.75 – 9.00
58-60 U.S. Motor 437 e.p.	9.25	9.125– 9.25	9.25
60-62 400 e.p. gasoline	9.75	9.75	10.00
64-66 390 e.p. gasoline	10.00 –10.25	10.00 –10.25	10.25
64-66 375 e.p. gasoline	10.25 –10.50	10.25 –10.50	10.50
68-70 350-360 e.p. gasoline	10.75 –11.00	10.75 –11.00	10.75 –11.00
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	10.00	10.00	10.25
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	9.50	9.75	9.75
58-60 450 e.p. gasoline	9.50 – 9.75	10.00	10.00
58-60 U.S. Motor 437 e.p.	10.00	10.00	10.25
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p	9.25 –12.50	9.50 –12.50	9.00 –12.50
58-61 U.S. Motor 437 e.p.	10.00 –13.50	10.00 –13.50	9.50 –13.50
42-45 Eng. dis. 445-480 e.p.	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00

‡3c tax to be added to California gasoline prices if used in state.

NATURAL GASOLINE

(Note. End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	10.00 –10.125	9.00 – 9.25	8.75 – 9.00
Grade A, 72-79.9, 90% Recovery	10.00 –10.125	9.00 – 9.25	8.75 – 9.00
Grade BB, 84-92, 85% Recovery	9.75	9.00	8.75
Grade B, 76-83.9, 85% Recovery	9.75	9.00	8.75
Grade C, 80-92, 78% Recovery	9.50	8.75	8.50
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	10.125	9.125– 9.25	8.75 – 9.00
Grade A, 72-79.9, 90% Recovery	10.125	9.125– 9.25	8.75 – 9.00
Grade BB, 84-92, 85% Recovery	9.875	9.00	8.75
Grade B, 76-83.9, 85% Recovery	9.875	9.00	8.75
Grade C, 80-92, 78% Recovery	9.625	8.75	8.50
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†10.50	†9.50	†9.50
Grade BB	†10.25	†9.25	†9.25
Grade C	†10.00	†9.00	†9.00
CALIFORNIA			
75-85, 375-390 e.p. blend	7.00 – 7.75	7.00 – 7.50	7.00 – 7.50

MOTOR FUEL BLENDS

OKLAHOMA			
54-66 Blend 437 e.p.	9.25	9.25 – 9.50	9.25 – 9.50

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	7.75 – 8.25	7.75 – 8.25	7.75 – 8.25
46 w.w. kerosene	8.125– 9.00	8.125– 9.00	8.125– 8.75
47 w.w. kerosene	8.50 – 9.25	8.50 – 9.25	8.75 – 9.00
300 mineral seal	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75

†Prices nominal **††Only one refiner quoting** ***Quotations only**

OKLAHOMA	Prices Sept. 24	Prices Sept. 17	Prices Sept. 10
41-43 w.w. kerosene	6.25 – 6.50	6.25 – 6.50	6.50 – 6.75
42-44 w.w. kerosene	6.75 – 7.00	6.75 – 7.00	7.00 – 7.25
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	6.875– 7.00	6.875– 7.00	6.875– 7.00
42-44 w.w. kerosene	7.25	7.25	7.25
NORTH TEXAS			
40-42 w.w. kerosene	5.875– 6.00	5.875– 6.00	6.00
41-43 w.w. kerosene	6.00 – 6.25	6.125– 6.25	6.25
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	7.00	7.00	7.00
ARKANSAS (Arkansas destination only)			
42-44 kerosene	7.25	7.25	7.25
CALIFORNIA			
38-40 w.w. kerosene	5.75 – 6.50	5.75 – 6.50	5.75 – 6.50

NEUTRAL OIL

PENNSYLVANIA Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt.	30.00 –32.00	30.00 –32.00	30.00 –32.00
180 No. 3 Assoc. Filt.	27.00 –29.50	28.50 –30.00	29.00 –30.00
150 No. 3 Assoc. Filt.	23.50 –25.00	24.00 –26.00	24.50 –26.50
	(Non Viscous)		
34 Grav. 330-340 Flash	6.75 – 9.00	6.75 – 9.00	6.75 – 9.00
36 Min. Neut, 300-305 Flash	6.00 – 8.50	6.00 – 8.50	6.00 – 8.50
****OKLAHOMA**			
Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.625–11.00	9.625–11.00	9.625–11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	8.50 –10.00	8.50 –10.00	8.50 –10.00
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
GULF COASTAL			
Vis. Color	(Viscosity at 100°F., pour test 0)		
100—No. 2 Unfilt. Pale	7.00 – 7.50	7.00 – 7.50	7.25 – 7.50
200—No. 3 Unfilt. Pale	10.00 –10.75	10.00 –10.75	10.50 –10.75
300—No. 3 Unfilt. Pale	11.00 –11.75	11.00 –11.75	11.50 –11.75
500—No. 3½ Unfilt. Pale	12.50 –13.50	12.50 –13.50	13.50 –13.75
750—No. 4 Unfilt. Pale	15.50 –16.00	15.50 –16.00	15.75 –16.00
200—No. 5½ Red Oil	8.25 – 8.75	8.25 – 8.75	8.50 – 8.75
300—No. 5½ Red Oil	9.00 – 9.75	9.00 – 9.75	9.50 – 9.75
500—No. 6 Red Oil	10.50 –11.25	10.50 –11.25	11.00 –11.25
750—No. 6 Red Oil	13.50 –14.00	13.50 –14.00	13.75 –14.00
CALIFORNIA			
Vis. Color	(Viscosity at 100°F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450—No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550—No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600—No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400—No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500—No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600—No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700—No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

****OKLAHOMA**			
190-200 Vis.at 210° Brt.St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis.at210° Brt.St.	26.00	26.00	25.00 –26.00
600 E.St.140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.00 –10.00	8.00 –10.00	8.00 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	13.50 –14.50	13.50 –14.25	13.00 –13.50
650 Steam Refined	15.00 –17.50	15.00 –16.50	14.50 –16.50
600 Flash	18.00 –18.75	18.50 –19.00	18.50 –19.00
625 Flash	28.00	28.00 –28.50	27.50 –29.00
600 Warren E	19.00 –20.00	19.00 –20.00	19.00 –20.00
600 Oil City E	17.00 –18.50	17.00 –18.50	17.00 –18.50
600 D Filtered	23.00 –24.00	††24.00	††24.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No.8color	36.00 –37.00	36.00 –36.50	36.50 –37.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	34.00 –35.00	34.00 –34.50	34.50 –35.00

****Represents both sales and quotations**

Largest producers of Denatured Alcohol

U.S. INDUSTRIAL ALCOHOL CO.

Executive Offices: 110 East 42nd Street, New York, N. Y.—Branches in all principal cities

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices Sept. 24	Prices Sept. 17	Prices Sept. 10
Per pound, New York			
122-124 white crude scale	5.375- 5.75	5.50 - 5.75	5.25
124-126 white crude scale	5.50 - 5.75	5.50 - 5.75	5.25
OKLAHOMA			
**124-126 White Crude Scale	5.00 - 5.25	5.00 - 5.125	5.00
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 - 6.50	6.00 - 6.50	6.00 - 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	4.50 - 4.75	4.50 - 4.75	4.50 - 4.75
30-34 fuel oil	4.25	4.25	4.25
28-32 fuel oil	4.125	4.125	4.125- 4.25
OKLAHOMA			
38-40 straw distillate	3.25 - 3.375	3.25 - 3.375	3.25 - 3.375
36-38 straw distillate	3.00 - 3.125	3.00 - 3.125	3.00 - 3.125
32-36 gas oil, straw	†2.625- 2.75	†2.50 - 2.75	†2.50 - 2.75
32-36 dark gas oil	2.375- 2.50	2.375- 2.50	2.375- 2.50
28-30 fuel oil (in bbls.)	$0.85 - 0.875	$0.85 -$0.875	$0.85 -$0.875
26-28 fuel oil (in bbls.)	$0.675- 0.725	$0.675-$0.725	$0.675-$0.725
24-26 fuel oil (in bbls.)	$0.65 - 0.675	$0.65 -$0.675	*$0.65-$0.675
22-26 fuel oil (in bbls.)	$0.575- 0.625	$0.575-$0.625	*$0.575-$0.625
18-22 fuel oil (in bbls.)	$0.55 - 0.60	$0.55 -$0.60	*$0.55 -$0.60
16-18 fuel oil (in bbls.)	$0.55	$0.55	*$0.55
14-16 fuel oil (in bbls.)	$0.55	$0.55	*$0.55
KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.50 - 3.625	3.50 - 3.625	3.50 - 3.625
36-38 straw distillate	3.125- 3.375	3.125- 3.375	3.125- 3.375
32-36 gas oil	2.625- 2.75	2.625- 2.75	2.625- 2.75
24-26 fuel oil	*$0.75- 0.80	*$0.75 -$0.80	*$0.75 -$0.80
18-22 fuel oil	*$0.70	*$0.70	*$0.70
NORTH TEXAS			
38-40 straw distillate	3.125- 3.375	3.125- 3.375	3.125
32-36 gas oil, cracked	2.375- 2.50	2.375- 2.50	2.375- 2.50
32-36 gas oil, uncracked	2.375- 2.50	2.375- 2.50	2.375- 2.50
24-26 fuel oil (in bbls.)	$0.55 - 0.575	$0.55 -$0.575	$0.55

GULF COASTAL	Prices Sept. 24	Prices Sept. 17	Prices Sept. 10
Fuel (in bbls.)	$1.20 -$1.25	$1.20 -$1.25	$1.20 -$1.25
Gas oil	4.25 - 4.375	4.25 - 4.375	4.25 - 4.375
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625- 2.875	2.625- 2.875	2.625- 2.875
32-36 gas oil, straw	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
16-20 fuel oil (in bbls.)	$0.70	$0.70	$0.70
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 - 3.25	3.00 - 3.25	3.00 - 3.25
32-36 gas oil	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
28-32 gas oil	2.75	2.75	2.75
Road Oil	....	$1.15	$1.15
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.65 -$0.70	$0.65 -$0.70	$0.65 -$0.70
14-18 Bunker oil (in bbls.)	$0.80 -$1.00	$0.80 -$1.00	$0.80 -$1.00
30-34 gas oil (in bbls.)	$1.00 -$1.20	$1.00 -$1.20	$1.00 -$1.20
27 Plus Diesel oil (in bbls.)	$0.90 -$1.00	$0.90 -$1.00	$0.90 -$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ½c to ¾c per pound less.) Quotations of only one refiner on all grades except red petrolatum which is quoted by two refiners.

Snow White	8.625	8.625	8.50
Lily White	7.625	7.625	7.50
Cream White	6.625	6.625	6.50
Light Amber	3.625	3.625	3.50
Amber	3.375	3.375	3.25
Red	2.375- 3.125	2.375- 3.125	2.375- 3.00

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

Lump	$4.50 - 5.00	$4.50 -$5.00	$4.50 - 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

†Prices Nominal ††Only One Refiner Quoting *Quotations only

****Represents Both Sales and Quotations**

California Refinery Market

Gasoline Movement Increases

Staff Special

LOS ANGELES, Sept. 22

U. S. MOTOR in tank cars for out of state movement showed further activity in California this week, with more goods being shipped at 9.50 cents than for some months. In some instances small shipments were made at 9 to 9.25 cents, but largely on contracts. It is understood no new business was signed at the lower figures.

Shipments within the state ranged 10 to 12.50 cents, without tax. The retail gasoline situation has cleared up to a great extent in southern California, but there is some price cutting going on in the Bay district around San Francisco, the price cutters selling at 2.50 cents under the official price.

Export gasoline prices are holding about even with previous quotations, although it is claimed that it is difficult to buy a cargo of U. S. Motor under 8.75 cents. Only one major refiner is seeking orders for U. S. Motor, and the others are making higher end point grades. It is reported this week one cargo of 375 end point was shipped at 10.1875 cents net at Los Angeles. There are rumors that French buyers are turning to California gasoline, but no actual sales could be verified. Most of the major companies are asking 11 to 11.50 cents for 375 end point gasoline.

Fuel oil is showing no strength, to say the least. A few cars of fuel have moved recently at 60 cents, although this small movement is looked upon as distress stuff, and not representative of the true market. Plenty of fuel can be purchased in tank cars at 65 to 70 cents. The American Petroleum Institute statement indicates that California stocks of heavy crudes, including all grades of fuel, were reduced 607,718 barrels in August and stocks of refinable crudes were increased 370,721 barrels.

Bids were opened Sept. 12 on U. S. Shipping Board west coast requirements for the coming year and revealed that only one company was willing to furnish nearly 1,000,000 barrels of fuel at 70 cents. The Texas Co. bid was 70 cents, adding 3.50 cents if used as bunkers. Pan American and Richfield bid 76 cents on bulk and 80 cents for bunkers, while Union Oil offered to furnish required fuel at 76.50 cents for both bulk and bunkers. Marine Oil was next with a bid of 78 cents for both bulk and bunkers. General Petroleum bid 79 cents and Shell Co. 85 cents for bulk deliveries. Associated Oil bid 80 cents as its low figure while Standard fixed $1 as the value it placed on its product.

For export fuel major refiners are asking from 70 cents up, but the market is inactive. The consumption of fuel on the West Coast is likely to show a considerable increase this fall and winter as more of this product will be cracked.

Gas oil and kerosene were steady. Several cars of natural gasoline were sold at 7.50 cents this week, although a few moved at 7 cents.

BOSTON, Sept. 24.—C. B. Sullivan, manager of the eastern district bulk sales department of the Sinclair Refining Co. at New York City, was in Boston last week, looking over his accounts in Massachusetts and Rhode Island. Mr. Sullivan finds conditions satisfactory in that territory.

Pennsylvania Refinery Market

Gasoline Unchanged

CLEVELAND, Sept. 22.—Gasoline quotations were unchanged this week in western Pennsylvania market in the face of a 1 cent tank wagon reduction by Atlantic Refining Co. Majority of refiners continued to quote 12 and 12.25 cents on U. S. Motor gasoline, and some 12.50 cents with a few 11.75 cents quotations.

Gasoline shipments continue at a high rate. Most refiners have their production booked for the balance of September.

Kerosene and wax also are well sold up for this month. Quotations on these goods were unchanged.

Viscous neutrals were lower, the 150 being quoted down to 23.50 cents and the 180 to 27 cents. Bright stocks quotations were varied. The light bright was quoted at 36 to 36.75 cents and the dark bright at 34 to 34.50 cents.

Cylinder stocks and fuel oil quotations were unchanged, generally. Top quotation on 650 steam refined advanced to 17.50 cents.

Eastern Kentucky Refinery Market

ASHLAND, Sept. 24.—Sept. 24 prices, f.o.b. eastern Kentucky refinery, are:

58-60 gasoline	12
60-62 gasoline	12.50
64-66 gasoline	13
68-70 gasoline	13.25
41-43 kerosene	7.75
34-36 gas oil	4.625
24-26 fuel oil	3.125

Dawson is Sales Manager Of Burford Plant

HOUSTON, Sept. 22.—Byron D. Dawson has been appointed sales manager of the Burford Refining Co., subsidiary of the Crystal Oil Refining Corp., and will make his headquarters at Pecos City, Texas, after Nov. 1, when the plant is scheduled to begin operation. Dawson was assistant sales and traffic manager of the Orient Petroleum Co., at Wichita Falls, from 1921 to 1924; general manager of the Wichita Refining Co., in 1924-1925; and later sales manager of the Amarillo Refining Co.

EL DORADO, Sept. 22.—D. S. Brooks, president of the Root Refineries Inc., has moved his resident to El Dorado, Ark., from Indianapolis. General offices of the company will be maintained as usual at Shreveport under the direction of D. P. Hamilton, vice-president.

Wax Market

Wax Is Steadier

NEW YORK, Sept. 22.—Wax markets were somewhat steadier this week. No appreciable pick-up in foreign buying was noted but the few small orders placed served to eliminate the distress offerings from resale agents with the result that prices from all class of sellers were more nearly on a parity.

Small lots of white crude scale sold early this week at 5.25 cents. The rapidity with which goods at this price were snapped up, gave rise to the belief that some dealers had sold the market short. And in view of the firm position held by refiners there was no hesitancy among these resale agents in covering.

By the end of the week, 5.25-cent scale had been completely eliminated. A broker, with order in hand, was offering 5.25 cents for 1,000 tons of scale for shipment over the next 10 months. He reported no success in getting any kind of an offer from refiners. October goods were offered at 5.375 cents and sold at this price. November-December stuff was offered 0.125-cent higher.

There was a routine demand for fully refined waxes and prices in this section of the market were generally unchanged. The 125-127 grade, however, was quoted at 6 cents flat as against 5.875 to 6 cents last week.

Prices for all grades of scale and fully refined were unchanged at New Orleans. South American demand was reported somewhat slower.

Gulf Lubes Are Active

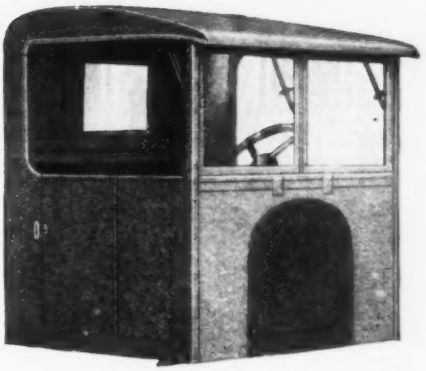
HOUSTON, Sept. 22.—Manufacturers of zero cold test lubricants in the Houston district report more business booked ahead for October than in any other month so far this year. New orders are coming in for spot shipments from domestic jobbers and contract requirements are being studied by prospective buyers. Prices generally are unchanged.

Texas Questions Gasoline Prices

HOUSTON, Sept. 22.—An investigation of the increase in Texas gasoline prices this summer is being conducted by the attorney general's office at Austin. A questionnaire mailed to all oil companies this week was devised, according to Attorney General Pollard, to gain information on production and transportation, cost of gasoline manufacture and other phases of the petroleum industry.

CORRECTION

The oil company referred to on page 86 of the Sept. 19 issue is known as Dick Tyler and not the Tyler Oil Co.



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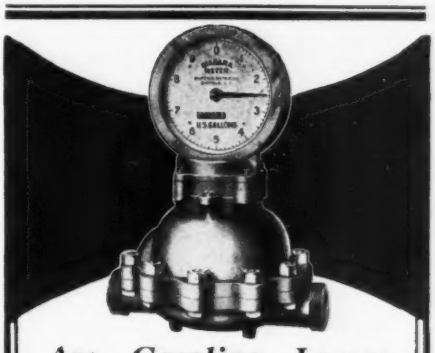

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"The Constant Guardians of Liquid Profits"

New York Domestic Market

Storm Curtails Gasoline Trade

Staff Special
NEW YORK, Sept. 22

GASOLINE prices eased off slightly in Eastern tank car markets this week. Refiners reported a fairly steady movement of contract stuff, but little in the way of new buying developed to lift prices from the temporary rut they apparently had gotten into.

The tail end of the southern hurricane hit the northern seaboard states around the middle of the week. Coming on the heels of none too favorable motoring weather which has prevailed since around the middle of August, the storm brought with it an almost complete cessation of spot buying from the jobbing trade.

According to well informed sources, a great many jobbers purchased a good deal in excess of their requirements in August and many of them succeeded in having shipments deferred until as late as the latter part of this month. In offering the foregoing explanation of the relatively slow September market, several observers believed that with old purchases pretty well cleaned up, jobbers are likely to break away from their recent hand-to-mouth buying policy and come through with some fair sized purchases next week.

The slow jobber buying which accompanied the inclement weather, naturally hit the resale end of the market first and it was through these channels that goods were offered under the listed prices of a majority of refiners this week. It was generally felt that the volume of gasoline in the hands of resale agents which had to be moved before the end of September was comparatively small. Their offerings this week, however, were sufficient to be considered representative of the general market.

At New York harbor several sales of small lots of U. S. Motor gasoline were reported early in the week at 11.625 cents against the 11.75-cent quotations of a majority of large companies. Toward the end of the week at least two companies reported sales at 11.50 cents and one resale agent was offering approximately 25 additional cars at the same price.

Competition developed in the California gasoline tank car market this week, when a broker began offering goods out of Wilmington, Del., at 11.50 cents. To meet this competition, at least three large sellers in the New York harbor market reduced their prices from 12 cents to 11.75 cents. One seller said he was still getting a small volume of business at the former figure where freight rates prevented the 11.50-cent stuff out of Wilmington from competing, but 11.75 cents governed most of his sales.

Atlantic Refining Co.'s 1-cent reduction in Pennsylvania and Delaware tank wagon Wednesday came as a surprise to the trade generally. Prices in this territory have been 1 cent higher than those in adjacent Standard territories but the reduction was wholly unexpected. There was no material change in tank cars markets in the Philadelphia district following the tank wagon cut, although distress offerings from brokers were said to have been more numerous.

Some shading of 11.75 cents for both California and regular U. S. Motor also was reported in the Baltimore market although in this district, the same as at Philadelphia, the volume of goods moved at lower prices was negligible and for this reason not representative of the general market.

Spot buying in New England districts also was reported slow. Sellers in this area, reported holding firm at 12.25 cents for U. S. Motor gasoline, f.o.b. refineries and terminals, with a minimum of 13.50 cents delivered. It was pointed out, however, that the majority of jobbers in this section were receiving goods on marginal contracts at 13 cents delivered, or 4 cents under posted tank wagon.

Prices of other oils were generally unchanged in all markets. Water white kerosene continued to be quoted at 8.50 cents in tank cars at New York, Philadelphia and Baltimore although some shading of this price in the latter market was reported. Gas oil was available at New York and Boston at 4.75 cents a gallon but for a better grade of low gravity burning oil, several companies were quoting 5 cents. Furnace oil was offered in these two markets at 6 to 6.25 cents. Posted prices for bunker oil in northern seaboard markets were unchanged at $1.05 a barrel f.o.b. terminals.

Gulf Export Market

Gasoline Actively Inquired For

Staff Special
NEW YORK, Sept. 22

FOREIGN inquiry for gasoline continued active this week. Although but one cargo transaction was reported closed, general market conditions were of such a nature that sentiment among export suppliers was more optimistic than for several weeks.

California took the business closed this week away from the Gulf. Reports from the west coast received by eastern suppliers, however, indicated that refiners out there are now fairly well supplied with orders for the next few weeks and subsequently there is little danger of California cutting in further on the Gulf to any great extent. Offers made to California refiners by New York brokers this week bore out this reasoning.

Although there was some reaction in prices at the Gulf as a result of California competition, markets suffered no great set back. Price reductions that were made were explained as normal recessions for the time of year, and were made mostly by suppliers who have refineries at the Gulf.

The excellent condition of markets in the field—Group 3 and north Texas—was regarded as an encouraging factor. Prices at the Gulf temporarily are all out of proportion to those prevailing in the field. Independent export suppliers said it was extremely difficult to get any kind of an offer from Mid-Continent refiners a few weeks ago when this relationship was more nearly normal, and that there was much less chance of getting them to accept export business now with prices still lower at the Gulf.

The downward trend in quotations at the Gulf began this week when one of the largest companies, with refinery at the Gulf, reduced its list prices for gasoline 0.125 to 0.5-cent. Other companies also lowered their quotations slightly, but in the absence of definite purchases, actual market prices were a bit difficult to determine.

The majority of suppliers continued to quote 10 cents for U. S. Motor gasoline but in some quarters this grade was offered at 9.875 cents. One supplier said there was a possibility of his shading this to 9.75 cents on firm offer. The 61-63, 390 end point grade was quoted largely at 11.125 to 11.25 cents and 64-66

(*Continued on Page* 118)

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You can command the attention and favorable buying attitude of these prospects by using Cincinnati Globes.

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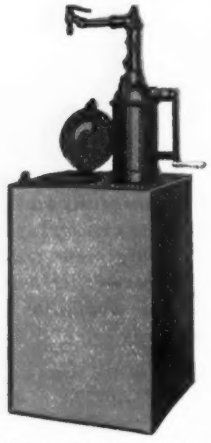
The manufacturer who disregards the importance of high-grade dispensing units is limiting the possibilities of trade expansion and cutting off the very source of greater business and bigger profits.

Good units make friends all along the way for your products and your concern. They please the dealer because they save his time and assure accuracy, as well as giving his place of business a clean-cut, modern, attractive appearance that brings trade to him. And they guarantee safe shipment.

The consumer is influenced to purchase your product because a pleasing package breeds confidence. In addition, it makes him conscious of your brand to a point where he will demand it and go where he can get it.

There is every argument in favor of the best units and not a single argument against them, No—not even cost!

We challenge the world with our kerosene, grease, oil lubricating and alcohol units for convenience, accuracy, cleanliness, wear-proof qualities and price. They are built to work and stand the wear of years of service. And they are built to bring more business to you.



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Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

	Sept. 24	Sept. 17	Sept. 10
U.S. Motor gasoline, New York harbor	11.50 –11.75	11.75	11.75
U.S. Motor gasoline, Philadelphia	11.75	11.75 –12.00	11.75 –12.00
U.S. Motor gasoline, Portland	†12.25 –12.75	†12.25 –12.75	†12.25–12.75
U.S. Motor gasoline, Boston district	*12.25	*12.25	*12.25
U.S. Motor gasoline, Providence district	*12.25	*12.25	*12.25
U.S. Motor gasoline, Baltimore	11.75	11.75	11.75
U.S. Motor gasoline, Norfolk	11.75	11.75	11.75
U.S. Motor gasoline, Charleston	11.50	11.50	11.50
U.S. Motor gasoline, Savannah	11.25	11.25	11.25
U.S. Motor gasoline, Jacksonville	11.00 –11.25	11.00 –11.25	11.25
California U.S. Motor gasoline, New York Harbor	11.75	11.75 –12.00	12.00
California U.S. Motor gasoline, Baltimore	11.75	11.75	11.75
California U.S. Motor gasoline, Philadelphia	11.75	11.75	11.75
Water white kerosene, New York Harbor	8.50	8.50	8.50
Water white kerosene, Philadelphia	8.50	8.50	8.50
Water white kerosene, Baltimore	8.50	8.50	8.50
28-34 gas oil, New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
28-34 gas oil, Boston district	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
36-40 furnace oil, New York harbor	6.00	6.00	6.00
36-40 furnace oil, Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Grade C bunker oil, New York harbor	$1.05	$1.05	$1.05
Grade C bunker oil, Boston district	$1.05	$1.05	$1.05
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.
*Minimum of 13.50c delivered.
†13.50 to 14c delivered

MEDICINAL OILS			
Russian 885-890 s.g. 325-330 vis	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	Sept. 24	Sept. 17	Sept. 10
U. S. Motor gasoline	26.90	26.90	26.90
43-45 150 w.w. kerosene	18.65	18.65	18.65
42-44 110 s.w. kerosene	17.40	17.40	17.40
CYLINDER OILS			
Bright stock, dark	43.00 –44.00	42.00 –43.00	42.00 –43.00
600 D filtered	30.00 –32.00	31.00 –32.00	31.00 –32.00
600 Warren E filtered	26.00 –27.00	26.00 –27.00	26.00 –27.00
600 s.r. unfiltered	20.00 –21.00	21.00	21.00
650 s.r. unfiltered	22.50 –24.00	22.50 –23.00	22.50 –23.00
600 flash, s.r.	26.00	26.00	26.00
630 flash, s.r.	35.00 –36.00	34.00 –36.00	34.00 –36.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50	19.50	19.50
250 vis. No. 6 color	18.50	18.50	18.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	19.50	19.50	19.50
100 vis. No. 2¼ color	15.50	15.50	15.50
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	34.50	34.50	34.50
500 vis. No. 6½ color	32.50	32.50	32.50
400 vis. No. 7¼ color	30.50	30.50	30.50
300 vis. No. 6 color	29.50	29.50	29.50
200 vis. No. 3¼ color	20.00	20.00	20.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)
WHITE CRUDE SCALE (In barrels)

	Sept. 24	Sept. 17	Sept. 10
122-124 A.m.p.	5.375– 5.50	5.375– 5.50	5.50
124-126 A.m.p.	5.375– 5.50	5.375– 5.50	5.50
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	5.75 – 5.875	5.875	5.875
125-127 A.m.p.	6.00	5.875– 6.00	5.875– 6.00
128-130 A.m.p.	6.25	6.25	6.25
130-132 A.m.p.	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
133-135 A.m.p.	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
135-137 A.m.p.	7.75	7.75	7.75
YELLOW CRUDE SCALE			
124-126 A.m.p.	5.25	5.25	5.25 – 5.375

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	Sept. 24	Sept. 17	Sept. 10
U. S. Motor	9.875–10.00	10.00	10.00
60-62. 400 e.p.	10.50 –10.75	10.75	10.75
61-63. 390 e.p.	11.125–11.25	11.25	11.25
64-66. 375 e.p.	11.50 –11.75	11.75 –12.00	12.00
U. S. Motor, cases (cargoes)	$1.90	$1.90	$1.90
64-66. cases (cargoes)	$2.05 –$2.10	$2.10	$2.10
KEROSENE			
44 water white	7.75	7.75	7.75
41-43 prime white	6.75	6.75	6.75
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875– 4.00	3.875– 4.00	3.875– 4.00
*30-32 translucent gas oil	4.00	4.00	4.00
Grade C bunker oil	$0.85 –$0.95	$0.875–$0.95	$0.80 –$0.90
Grade C bunker oil, cargoes	$0.65 –$0.70	$0.65 –$0.70	$0.65 –$0.70

*Less than ½ of 1% sulfur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.95	$0.95	$1.00 –$1.02
Grade C bunker oil, for bunkering purposes, taxes paid	$1.05	$1.05	$1.10

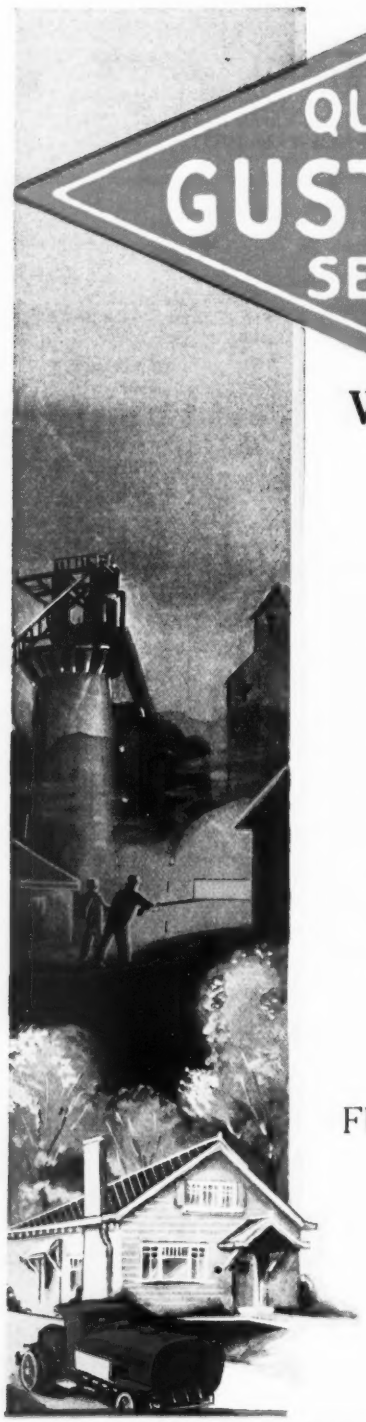
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.: cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	5.75	5.75	5.75
200 vis. No. 3 unfiltered pale	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
300 vis. No. 3 unfiltered pale	9.50 – 9.875	9.50 – 9.875	9.50 – 9.875
500 vis. No. 3½ unfiltered pale	10.75 –11.50	10.75 –11.50	10.75 –11.50
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200 vis. No. 5-6 red oil	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
300 vis. No. 5-6 red oil	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
500 vis. No. 5-6 red oil	9.75 –10.50	9.75 –10.50	9.75 –10.50
750 vis. No. 5-6 red oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
1200 vis. No. 5-6 red oil	14.50 –16.50	14.50 –16.50	14.50 –16.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Sept. 24	Sept. 17	Sept. 10
Gasoline, U. S. Motor, 53-55 Gravity	8.75 – 9.25	8.75 – 9.25	8.50 – 9.00
Gasoline, U. S. Motor, blends and special cuts	9.25 –10.50	9.25 –10.50	9.00 – 9.50
Gas Oil, 30-34, per barrel	$1.10 –$1.20	$1.10 –$1.20	$1.10 –$1.20
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18 per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.70 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.50 –$1.60	$1.50 –$1.60	$1.50 –$1.60



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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Atlantic Refining—T.w. and s.s. prices gasoline reduced 1 cent, Pennsylvania and Delaware, **Sept. 19.** New t.w. price is 17 cents, exclusive of state taxes. Last previous change was a 1 cent advance on **Aug. 16.**

Standard of Louisiana—S.s. price only of gasoline reduced 2 cents, Knoxville, to 21 cents, including 2 cent state tax, **Sept. 19.** T.w. unchanged at 21 cents.

Kerosene Changes

Standard of Kentucky—Kerosene price reduced 2 cents, Birmingham, to 14 cents t.w., **Sept. 18.**

Containers Are Featured In Sale of Grease

CLEVELAND, Sept. 24.—Nourse Oil Co., Kansas City, in promoting sale of its pressure lubricant and graphite axle grease, features the containers as well as the lubricants.

The pressure lubricant is sold in 25-pound cans which have plungers and spouts. By pressing on the plunger top grease is ejected through a spout into the gun, thus preventing waste and muss. The axle grease is put up in 10, 15 and 25-pound galvanized pails which can be used on the farm after the pails are emptied.

The company also is giving a six-socket wrench outfit with each half barrel or more of tractor oil.

WARREN, Pa., Sept. 20.—Mark Cowden, president of the Pennsylvania Oil Products Refining Co., returned today from Europe.

MONTREAL, Sept. 22.—J. Romeo Gauvreau, president of the Loyal Oil Ltd., is spending a few weeks in Europe. He is accompanied by Mrs. Gauvreau.

Tanker Rates

NEW YORK, Sept. 24.—Approximate tanker freight rates in the following trades are, to Continental ports, in shillings per ton of 2240 pounds, British Sterling; to American ports, cents per barrels:

	Crude &/or Fuel	Refined Oil
Calif. to U. K. or Continental ports*	25/6	25/6
Gulf to U.K. or Continental ports*	14	14/3
North Atlantic to U.K. or Continental Ports*	12/3	12/6
Calif. to North Atlantic ports (not E. of N. Y.)	50-55c	65-70c
**Gulf and North Atlantic ports (not E. of N. Y.)	16-17c	25-27c

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**For Venezuela loading 1c per bbl. additional. For Tampico loading 4c per bbl. additional.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for 1927, 1926, 1925, 1924 arranged for quick reference)

These Prices in Effect Sept. 24, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	17	2	19	20	14
Newark, N. J.	17	2	19	20	14
Annapolis, Md.	17	4	21	23	14
Baltimore, Md.	17	4	21	23	11
Cumberland, Md.	17	4	21	23	14
Washington, D. C.	17	2	19	21	14
Danville, Va.	17	5	22	*	14
Norfolk, Va.	14	5	19	20	14
Richmond, Va.	17	5	22	24	14
Roanaoke, Va.	17	5	22	24	14
Petersburg, Va.	17	5	22	24	14
Charleston, W. Va.	17	4	21	23	14
Keyser, W. Va.	17	4	21	23	14
Parkersburg, W. Va.	17	4	21	23	14
Wheeling, W. Va.	17	4	21	23	14
Charlotte, N. C.	17	4	21	23	14
Hickory, N. C.	17	4	21	23	14
Mt. Airy, N. C.	17	4	21	23	14
Salisbury, N. C.	17	4	21	23	14
Charleston, S. C.	17	5	22	24	14
Columbia, S. C.	17	5	22	24	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	18	0	18	*20	15
Albany, N. Y.	18	0	18	21	15
Buffalo, N. Y.	18	0	18	20	15
Rochester, N. Y.	18	0	18	20	13
Syracuse, N. Y.	18	0	18	20	15
Boston, Mass.	18	0	18	20	15
Augusta, Me.	18	4	22	24	15
Manchester, N. H.	18	4	22	24	15
Burlington, Vt.	18	3	21	23	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York, selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	17	*	17	*22	15
Philadelphia, Pa.	17	*	17	*22	15
Allentown, Pa.	17	*	17	*22	15
Erie, Pa.	17	*	17	*22	15
Scranton, Pa.	17	*	17	*22	15
Altoona, Pa.	17	*	17	*22	15
Dover, Del.	17	3	20	22	15
Wilmington, Del.	17	3	20	22	15
Providence, R. I.	18	2	20	22	15
Boston, Mass.	18	0	18	20	15
Springfield, Mass.	18	0	18	20	15
Worcester, Mass.	18	0	18	20	15
Hartford, Conn.	18	2	20	22	14
New Haven, Conn.	18	2	20	22	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Ashland, Ky.	17	5	22	24	15.5
Catlettsburg, Ky.	17	5	22	24	15.5
Lexington, Ky.	16	5	21	23	15.5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	17	5	22	22	15.5
Clarksdale, Miss.	17	4	21	23	13
Gulfport, Miss††	18.5	4	22.5	24.5	14
Jackson, Miss.	17	4	21	23	14.5
Natchez, Miss.	16.5	4	20.5	22.5	14
Vicksburg, Miss.	16.5	4	20.5	22.5	14
Birmingham, Ala.	14	4	18	20	14
Mobile, Ala‡	18	4	22	24	15
Montgomery, Ala.*	19	4	23	25	16.5
Atlanta, Ga.	18	4	22	24	†16.5
Augusta, Ga.	18	4	22	24	†15.5
Macon, Ga.	18	4	22	24	†16.5
Savannah, Ga.	17	4	21	21	†15 5
Jacksonville, Fla.	18	5	23	25	14.5
Miami, Fla.	19	5	24	26	15.5
Tampa, Fla.	18	5	23	25	14.5
Pensacola, Fla.**	19	5	24	26	14.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Chicago, Ill.	15	0	15	17	12
Decatur, Ill.	15.2	0	15.2	17.2	12.1
E. St. Louis, Ill.	14.4	0	14.4	16.4	11.2
Joliet, Ill.	15.4	0	15.4	17.4	12.3
Peoria, Ill.	15.2	0	15.2	17.2	12.1
Quincy, Ill.	15.2	0	15.2	17.2	11.9
Indianapolis, Ind.	15.2	3	18.2	20.2	13.2
Evansville, Ind.	15	3	18	20	13
South Bend, Ind.	15.4	3	18.4	20.4	13.4
Detroit, Mich.	15.8	3	18.8	20.8	13.7
Grand Rapids, Mich.	15.7	3	18.7	20.7	13.6
Saginaw, Mich.	15.9	3	18.9	20.9	13.8
Green Bay, Wis.	15.6	2	17.6	19.6	12.4
Madison, Wis.	15.3	2	17.3	19.3	12.1
Milwaukee, Wis.	15.1	2	17.1	19 1	11.9
La Crosse, Wis.	16.2	2	18.2	20.2	13
Minneapolis, Minn.	16.2	2	18.2	20.2	12.9
Duluth, Minn.	16.5	2	18.5	20.5	12.9
Mankato, Minn.	16.1	2	18.1	20.1	12.7
Des Moines, Ia.	15.5	3	18.5	20.5	12.3
Davenport, Ia.	15.5	3	18.5	20.5	12.3
Sioux City, Ia.	15.1	3	18.1	20.1	11.9
Mason City, Ia.	15.5	3	18.5	20.5	12.3
St. Louis, Mo.	*14.9	2	16.9	18.9	11.3
Kansas City, Mo.	†15.9	2	17.9	19.9	10.6
St. Joseph, Mo.	†15.5	2	17.5	19.5	11.2
Fargo, N. D.	17.9	2	19.9	21.9	14.9
Grand Forks, N. D.	18.2	2	20.2	22.2	15.2
Minot, N. D.	17.9	2	19.9	21.9	14.9
Pierre, S. D.	16	4	20	22	13.4
Huron, S. D.	16.3	4	20.3	22.3	13.7
Wichita, Kans.	13.8	2	15.8	17.8	10.8
Bartlesville, Okla.	13.5	3	16.5	18.5	10.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline is ½c for 750 gals. or more a month; 1c for 2,000 gals. or more a month; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month. All discounts adjusted annually.

*Includes city tax of ½c.

†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	16	3	19	22	14.5
Pueblo, Colo.	16	3	19	22	14.5
Grand Junc., Colo.	19.5	3	22.5	25.5	18
Casper, Wyo.	16	3	19	22	13
Cheyenne, Wyo.	17	3	20	23	14.5
Butte, Mont.	20.5	3	23.5	26.5	19
Helena, Mont.	20.5	3	23.5	26.5	19
Salt Lake City, Utah	18.5	3½	22	25	17
Boise, Ida.	20.5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	27.5	19
Albuquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	16	5	21	23	14
Alexandria, La.	15	2	17	19	†16
Baton Rouge, La.	14	2	16	18	†14.5
Lake Charles, La.	15.5	2	17.5	19.5	†16
New Orleans, La.	*15.5	2	*17.5	*19.5	†16
Shreveport, La.	15.5	2	17.5	19.5	†15
Lafayette, La.	15	2	17	19	†15.5
Bristol, Tenn.	18	3	21	23	15
Chattanooga, Tenn.	17.5	3	20.5	22.5	16
Knoxville, Tenn.	18	3	21	21	16
Nashville, Tenn.	17	3	20	22	16
Memphis, Tenn.	15	3	18	20	15

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
All Ohio points	16	3	19	20	14

S. O. NEBRASKA

Omaha, Neb.	15.25	2	17.25	19.25	12.25
McCook	16.75	2	18.75	20 75	13.75
Norfolk	15.75	2	17.75	19.75	12.75
North Platte	16.75	2	18.75	20.50	13.50
Scottsbluff	16.75	2	18.75	20.75	13.25

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	11
Oklahoma City.	15	3	18	20	11
Tulsa, Okla.	14	3	17	19	9
Fort Smith, Ark.*	16	*2	18	20	13
Little Rock, Ark.	16	5	21	23	13
Texarkana, Ark.*	14.5	*2	16.5	20.5	13
Dallas, Tex.	14	2	16	20	12
Fort Worth, Tex.	14	2	16	19	12
Houston, Tex.	14	2	16	20	15
San Antonio, Tex.	12	2	14	17	11
El Paso, Tex.	15	2	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 2c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		20	....

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
ONTARIO					
Toronto	20.5	3	23.5	27	22
Ottawa	20.5	3	23.5	27	22
Cochrane	25.5	3	28.5	..	27
Ft. William	23.5	3	26.5	30	23.5
MANITOBA					
Winnipeg	22.5	3	25.5	29	22.5
SASKATCHEWAN					
Regina	27	3	30	34	27
ALBERTA					
Edmonton	27.5	3	30.5	34	27.5
Calgary	22.5	3	25.5	29	22.5
BRITISH COLUMBIA					
Vancouver	21	3	24	28	22
QUEBEC					
Montreal	21.5	5	26.5	30	22
Quebec City	22.5	5	27.5	31	23
Three Rivers	22.5	5	27.5	31	23
NEW BRUNSWICK					
St. John	23.5	3	26.5	30	25
Moncton	23.5	3	26.5	30	25
NOVA SCOTIA					
Halifax	23.5	5	28.5	32	25
Sydney	23.5	5	28.5	32	25
PRINCE EDWARD ISLAND					
Charlottetown	23.5	5	28.5	32	25

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c on both; Indiana, 2/25c on both; Kansas, 1/50c on both; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c on both; Missouri, 1/50c on both; Nebraska 3/50 to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Crude Oil Prices (in Effect Sept. 24)

(Crude prices for years 1924-1925-1926-1927 in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3 35
Bradford District Oil in National Transit Lines (Bradford District)	3.35
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.25
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.25
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.15
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.00
Keister Grade in National Transit Lines (Butler Co.)	1.20
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.80
Corning, O., heavy grade	1.70
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.75
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.65

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective July 27, 1928

Wooster	$1.67	Princeton	$1.55
Lima	1.60	Illinois	1.55
Waterloo	1.20	Plymouth	1.28
Indiana	1.37	West Kentucky	1.63

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$2 00
Oil Springs	2.07

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)

Effective July 26, 1928

Below 25	$0 60	35-35.9	$1.31
25-25 9	0 67	36-36 9	1.36
26-26 9	0 74	37-37.9	1.41
27-27 9	0 81	38-38.9	1.46
28-28.9	0.88	39-39.9	1.51
29-29.9	0 95	40-40.9	1.56
30-30.9	1 02	41-41.9	1.61
31-31.9	1.09	42-42.9	1.66
32-32.9	1.16	43-43.9	1.71
33-33.9	1.21	44 and above	1.76
34-34.9	1.26		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

July 26, same schedule as Prairie.

Mirando, Tex	$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

July 26, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 25	$0 60	27-29 9	$0 75
25-25 9	0 67	30 30.9	0 90
26-26 9	0 74	31-31.9	1 05

Glasscock, Crane, Upton, Winkler Counties	0 65
Chalkfield (Howard Co.)	0.80
Iatan district	0.93
Corsicana heavy	1.00

Carter Oil Co.

(Oklahoma and Kansas)

July 26, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Hutchinson and Carson Counties:

Below 32	$0.69	38-38.9	$1.06
32-32.9	0 76	39-39.9	1 11
33-33.9	0 81	40-40.9	1 16
34-34.9	0 86	41-41.9	1.21
35-35 9	0 91	42-42.9	1.26
36-36.9	0 96	43-43.9	1.31
37-37.9	1.01	44 and above	1.36

Wheeler County:

Below 30	$0.65	37-37.9	$1.11
30-30.9	0 72	38-38.9	1.16
31-31.9	0 79	39-39.9	1.21
32-32.9	0.86	40-40.9	1.26
33-33.9	0.91	41-41.9	1.31
34-34.9	0 96	42-42.9	1.36
35-35.9	1.01	43-43.9	1.41
36-36.9	1.06	44 and above	1.46

Gray County:

Below 29	$0.68	37-37.9	1.21
29-29.9	0.75	38-38.9	1.26
30-30.9	0.82	39-39.9	1.31
31-31.9	0.89	40-40.9	1.36
32-32.9	0.96	41-41.9	1.41
33-33.9	1 01	42-42.9	1.46
34-34.9	1 06	43-43.9	1.51
35-35.9	1.11	44 and above	1.56
36-36.9	$1.16		

WEST TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Winkler, Crane, Upton, Crockett, and Pecos Counties	$0.65

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.

Effective July 26, 1928

Below 28	$0 81	36-36.9	$1.36
28-28.9	0 88	37-37.9	1 41
29-29.9	0 95	38-38.9	1.46
30-30 9	1 02	39-39.9	1 51
31-31.9	1 09	40-40.9	1 56
32-32 9	1 16	41-41.9	1 61
33-33 9	1 21	42-42.9	1 66
34-34.9	1 26	43-43.9	1 71
35-35.9	1.31	44 and above	1.76

**Cotton Valley, below 36, $0.75. Beginning with 36-36.9, same schedule as above.

Smackover, below 24	$0.75
do 24 and above	.90
Bellevue	1.25
*Urania, La	.85
†East El Dorado	0.75

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La. Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia on Feb 6 by La. Oil Refg. Corp.

Aug. 8 The Texas Co., same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.67; 26-26.9, $0 74; 27 27.9, $0.81.

Aug. 7 Magnolia Petroleum met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Aug. 2, 1928

Below 28	$0 75	30-30.9	$0 87
28-28.9	0 79	31-31.9	0 91
29-29.9	0.84	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25 9	1.17	32-32.9	1.31
26-26 9	1.19	33-33.9	1.33
27-27 9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

Gasoline is Active At Gulf

(*Continued from Page* 112)

375 end point gasoline at 11.50 to 11.75 cents.

The inquiry from a French buyer held over from last week was closed Tuesday with a California refiner. The cargo, which is for late October loading, is to consist of approximately 35,000 barrels of straight run 64-66, 375 end point gasoline and approximately 15,000 barrels of a natural gasoline blend with the same specifications. The transaction was closed at 10.125 cents, f.o.b. California, which figures around 11 cents at the Gulf.

A broker negotiating the Scandinavian inquiry for 50,000 to 65,000 barrels of 64-66, 375 end point straight run gasoline reported in the market last week, said he was unable to get a better offer than 10.50 cents in California late this week. This led a good many suppliers to believe the situation in California was tightening.

Several other inquiries were received from French and English buyers this week. Some of them were withdrawn from the market and was postponed until next week.

The most important was one from a French buyer for 50,000 to 60,000 barrels of U. S. Motor gasoline for November loading. An offer of 8.50 cents was obtained in California late this week, but the buyer decided to defer closing for a few days.

A second French buyer entered the market Friday for approximately 38,000 barrels of U. S. Motor and 64-66, 375 end point gasoline for October-November lifting. Offers for this position proved unattractive and the buyer revised his inquiry, asking for about 30,000 barrels of 64-66 only, afloat, to be quoted on a c.i.f. basis. A survey of the trade Saturday disclosed no goods in transit that could be diverted.

An English buyer entered the market Thursday for approximately 42,000 barrels of 60-62, 390 end point gasoline for Oct. 15-Dec. 15 loading. Few suppliers likewise were willing to quote this far ahead and up to the close of the week no offers had been reported made.

One inquiry which specified a large quantity of kerosene was circulated among the trade early this week. It was withdrawn later, however, with the result that the week was minus a kerosene transaction.

Quotations for prime white were generally unchanged at 6.75 cents, although it was indicated by one supplier that 0.125 to 0.25-cent less might be done. Water white was quoted largely at 7.75 cents and this grade continued to be reported relatively scarce.

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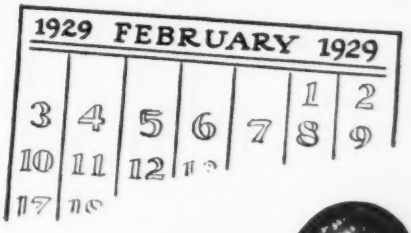

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Crude Oil Prices (in Effect Sept. 24)

(Crude prices for years 1924-1925-1926-1927 in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A	$1.20	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.37	38-38.9	$1.43
36-36.9	1.39	39-39.9	1.45
37-37.9	1.41	40 and above	1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective July 26, 1928)

‡Salt Creek 29-29.9	$0.95
" " 30-30.9	1.02
" " 31-31.9	1.09
" " 32-32.9	1.16
" " 33-33.9	1.21
" " 34-34.9	1.26
" " 35-35.9	1.31
" " 36-36.9	1.36
" " 37 and above	1.41
Elk Basin	1.48
Grass Creek light	1.48
Big Muddy	1.33
Lance Creek	1.48
Rock Creek	1.33
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.48
‡Cat Creek, Mont	1.48
Sunburst, Mont	1.65
‡Hogback, N. Mex	1.48
Artesia, N. Mex	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85	$ .85
15-15.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
16-16.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
17 17.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
18-18.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
19-19.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
20-20.9	.85	.85	.85	....	.85	.85	....	....	.77	.77	.77	.77	.86	.85	.85
21-21.9	.89	.89	.89	....	.88	.88	.89	....	.79	.79	.79	.79	.89	.86	.86
22-22.9	.93	.93	.93	....	.91	.91	.92	....	.82	.82	.82	.82	.92	.87	.87
23-23.9	.97	.97	.97	....	....	.94	.95	....	.86	.86	.85	.85	.95	.90	.90
24-24.9	1.01	1.01	1 01	1.01	....	.97	.98	....	.90	.90	.88	.88	.98	.93	.94
25-25.9	1.05	1 05	1.05	1.05	....	1.00	1.01	....	.95	.95	.91	.91	1.01	.95	.98
26-26.9	1.09	1.09	1.09	1.09	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	.97	1.02
27-27.9	1.13	1.13	1 13	1.13	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	1.10
29-29.9	1.21	....	1.21	1.21	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	.....	1.14
30-30.9	1.25	....	1.25	1.25	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	1.18
31-31.9	1.30	....	....	1.30	....	....	1.25	....	1.28	1.28	1.14	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	.....	1.30	....	1.34	1.34	1.18	....	....	....	1.28
33-33.9	....	....	....	1.41	....	.....	1.35	....	1.40	1.40	1.22	....	....	....	....
34-34.9	....	....	....	1.47	....	.....	1.40	....	....	1.46	1.26	....	....	....	....
35-35.9	....	....	....	1.53	....	....	1.45	....	....	....	1.30	....	....	....	....
36-36.9	....	....	....	1.59	....	....	1.50	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	....	....	1.55	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	....	....	1.60	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	....	....	1.65	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	....	....	....	....	....	....	....	....	....	....	....

*Union Oil Co. posts same prices in all above fields as Standard except in Montebello and Wheeler Ridge. It also posts Elwood Terrace at same prices as Rosecrans—Dominguez and also posts Santa Maria (Orcutt) and Ventura.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	Sept. 24	Sept. 17
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.	$0.90	$0.90
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks., lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	8.75	8.75

Compounders' Supplies

	Sept. 24	Sept. 17
Vegetable Oils		
Linseed carloads, spot, lb.	9.90	9.70
Tanks, spot	9.10	8.90
Soya Bean, Tanks, coast, lb.	9.75	9.75
Oleic Acid		
Distilled, tanks, lb.	9.00	9.00
Distilled, bbls., lb.	9.75	9.75
Saponified, tanks, lb.	9.25	9.25
Saponified, bbls., lb.	10.00	10.00
Lard Oils		
Prime Winter Strained, lb.	16.50	16.25
Extra Winter Strained, lb.	13.75	13.25
Extra, lb.	13.00	12.75
Extra No. 1, lb.	12.75	12.50
No. 1, lb.	12.25	11.375
No. 2, lb.	11.875	11.375
Tallow oil, lb.	12.00	11.75
Neatsfoot Oil		
Pure, bbls., lb.	15.25	15.25
Extra, bbls., lb.	13.00	12.75
No. 1 bbls., lb.	12.50	12.00
Cold Pressed, lb.	19.00	18.50
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	60	60
Light Pressed, tank cars, N. Y., gal.	52-53	54-56
White bleached, gal.	67-68	65-66
Yellow bleached, gal.	64-65	66-68
Whale, extra winter bleached, gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y., gal.	50	47
Steam distilled turpentine, Savannah, gal.	45	42
Gum turpentine, N. Y., gal.	55	52
Gum turpentine, f.o.b. cars Savannah, gal.	51	48
Wood Rosin F, N. Y., bbl.	$8.05	$7.80
Wood Rosin F, Savn'h., bbl.	$7.25	$7.00
Gum Rosin B, N. Y., bbl.	$8.95	$8.85
Gum Rosin B, f.o.b. cars Savannah, bbl.	$8.20	$8.10
Rosin oil, pure, gal.	58	58
Rosin oil, compounded, gal.	49	49
Pine Tar		
Kiln burnt, bbl.	$12.50-14.00	$12.50-14.00
Retort, bbl.	$13.50-15.50	$13.50-15.50
Alcohol		
Denatured, Formula 5, in bbls., per gal.	54-61	54-61

*Nominal.

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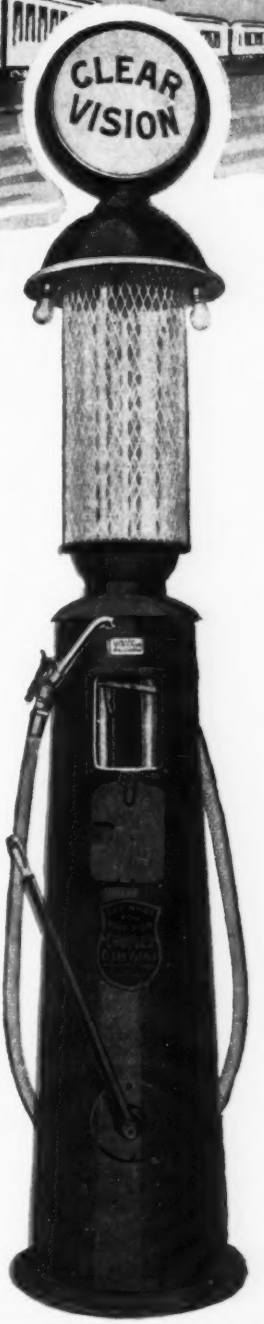

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OIL STOCKS AND FINANCES

National Petroleum News

Galena Extends Time to Deposit Stock in Reorganization Plan

CLEVELAND, Sept. 20

TIME for deposition of preferred and common stock of the Galena Signal Oil Co. of Pennsylvania under the stockholders' reorganization plan has been extended from Sept. 15 to Sept. 28.

Frederick Strauss, chairman of the stockholders' committee of which J. S. Cullinan and Lyman Rhoades are other members, announced that only about 69 per cent of the preferred stock and 64 per cent of the common stock had been deposited. The committee indicated when the reorganization plan was first put up to stockholders in August, that about 90 per cent of the stock should indicate approval by depositing their certificates with the Equitable Trust Co. of New York to enable the reorganization.

The plan proposed the sale to The Texas Corp. of the following assets of the Pennsylvania company and its subsidiaries for cash or the assumption of certain liabilities:

Terminal at Bayway, N. J.; plant at East Cambridge, Mass.; station at Cincinnati; station at East St. Louis, Ill.; station at Jacksonville, Fla., and all the capital stocks of the Galena-Signal Oil Co., Sociedad Anonima of Argentina and Sociedade Anonyma de Oleo Galena-Signal of Brazil, all of which are properties of the parent company.

Galena refinery on the Houston ship canal; East Houston tank farm; Mexia tank farm; Wilmington, N. C., terminal; Hill St. station, Houston; service station at Houston, and the New Orleans station, all of which property belonged to the Galena-Signal Oil Co. of Texas.

Humble pump station; East Houston pump station, and main trunk pipe line in Texas, which were owned by the Galena Pipe Line Co.

The Pennsylvania company has also agreed to sell to The Texas Corp. its French and Irish subsidiaries and the floating equipment of the Galena Navigation Co.

Accounts and bills receivable of the subsidiaries are to be liquidated and the receipts in excess of bills payable are to go to the Pennsylvania company together with any investment securities held by them.

The $1,177,000 6 per cent bonds which mature June 30, 1933, and the $3,646,100 bonds of the 7 per cent convertible debenture bonds of the Texas subsidiary which mature April 1, 1930, are to be retired if the plan is carried out, unless arrangement is made for their assumption by the purchasing company, in which case the cash purchase price would be reduced correspondingly.

The remaining properties including the main plant at Franklin, Pa., with its inventories, accounts and bills receivable, and securities and the capital stocks of the Franklin Lead Oxide Co. and Galena-Signal Oil Co., Ltd., of England, are to be transferred to a new corporation which will have a capitalization of 280,000 no par shares.

Holders of preferred stock of which $6,000,000, par value, is outstanding, are to receive $75 cash per share and two shares of common stock in the new corporation per share. Holders of common stock of which $16,000,000, par value, is outstanding are to receive new common on a share for share basis. Old common has a par of $100 per share.

The stockholders committee estimates $10,527,000 would be realized in the reorganization, derived as follows:

Sale of fixed assets	$5,500,000
Sale of subsidiaries' inventories	2,000,000
Cash of company and subsidiaries	1,527,000
Net realization from receivables	1,500,000

Disbursements would be as follows:

Retirement of 6% bonds	$1,295,000
Retirement of 7% bonds	3,937,000
Cash to preferred stock holders	4,500,000
Cash working capital for new company	400,000
Reserve for creditors' claims	395,000
Total	$10,527,000

STANDARD OIL ISSUES

CARL H. PFORZHEIMER & CO.

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25 Broad Street New York

Indian Refunds Preferred: Adds to Its Common

NEW YORK, Sept. 21.—Indian Refining Co. has listed $3,348,100 of 7 per cent refunding cumulative convertible preferred stock, the same amount of stock trust certificates for this class of stock, $500,000 additional common stock, par $10 a share, and trust certificates for the common stock.

Indian's old preferred stock is exchangeable for new preferred until Sept. 28 in an amount equal to the principal and accumulated dividends on the old preferred. The accumulations from Dec. 16, 1921, to Sept. 30, 1928, amount to $47.55 which are covered in a recently declared dividend.

The new preferred as well as the old is convertible into five shares of common for each share of preferred. The new preferred is callable at $120. An initial dividend of $1.75 a share has been declared on it.

Indian showed net profit of $110,533 in the first half of 1928, equal after dividends on the preferred stock to 3 cents a share on the $10 common stock. In the first half of 1927 the company netted only 89 cents a share on the 22,964 shares of $100 7 per cent preferred stock.

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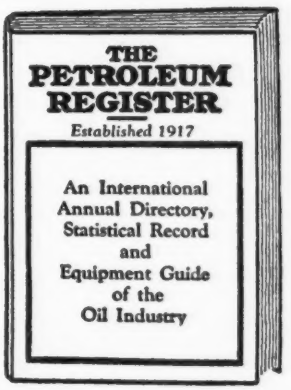

The new 1928 edition of The Petroleum Register is off the press.

It is an annual directory of Oil Producers, Refiners, Marketers (listed alphabetically by States), Compounders, Grease Manufacturers, Pipe Line Companies, Natural Gasoline Manufacturers, Drilling Contractors and Foreign Oil Companies, with addresses, names of officers, capital stock, location of properties, A. P. I. Specifications, Petroleum Geologists, and Oil Associations.

There is a new section devoted to the listing of many obsolete companies which will enable you to keep your files clear of dead material.

The Personnel Department and the Statistical Section have been revised to date.

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Vol. II—Refining, plant layout for various oils, specifications for tanks, stills, condensers, agitators, filter presses, etc., refinery operation, fire prevention; Cracking processes; Use of fuel oil, oil burner installations; Internal combustion engines; Lubrication; Oil pipe standards and uses; Tables. 1006 pages.

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Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 22 Sales	First	High	Low	Last	Change
37⅞	27⅝	38	27½	(sh) 922,075	N.P.	Amerada Corp.	50cQ	July 31, 28	11,000	33⅜	33⅜	31⅛	32⅛	0
82½	35⅛	85	51¼	(sh) 209.180	N.P.	American Republics Corp.	....	.....	22,800	73¾	76	71	73	+ ⅞
50¼	35	53⅜	37½	$56.000.000	$ 25	Associated Oil	50cQ	Sept. 29, 28	960	50	50	48	48	— 2
131⅜	104	174⅞	95⅜	50.000.000	100	Atlantic Refining	$1Q	Sept. 15, 28	108,700	174½	189¾	173	184¾	+16
119	115½	118¼	114½	20.000.000	100	do pfd	$1.75Q	Aug. 1, 28	.....	.....	.....	.....	.....	.. 1¼
35½	20¾	36¼	20⅛	30,971,225	25	Barnsdall Corp. A	....	Feb. 6, 28	329,500	35⅞	36¼	32¾	34¾	— 1¼
32½	20½	35½	22	581,850	25	do B	....	Feb. 6, 28	4,400	35	*35½	34½	34½	— ½
18¼	14	20¼	12¼	946,518	N.P.	Beacon Oil	....	.....	82,700	19⅜	19⅝	18	18½	— ⅝
32⅞	20	32¾	24	51,524,150	25	California Petroleum	25cQ	Oct. 1, 28	.....	.....	.....	.....	.....	.....
96¾	65	94⅞	70	20,980,400	100	General Asphalt	.....	.....	55,500	77¾	82⅝	76	81¾	+ 5¼
144⅞	107¼	141½	111	6,662,200	100	do pfd	$1.25Q	Sept. 1, 28	800	116½	123	116½	123	+ 3
175¾	60½	167	127	25,000,000	100	Houston Oil	.....	.....	13,700	141¼	147¾	139	145⅝	+ 4⅝
32¾	17⅝	31¾	21¾	(sh) 659,000	N.P.	Independent Oil & Gas	25cQ	July 31, 28	54,400	29⅝	30⅞	28⅜	30¼	+ 1¼
12⅜	7⅝	39⅝	9	$3,582.670	$ 10	Indian Refining	....	Dec. 15, 20	40,900	32⅞	33⅞	31¾	33¾	+ ⅝
12	7¼	37¼	8½	4,550,110	10	do ctfs	....	.....	18,800	30⅞	31⅜	29½	30⅜	0
112	99	250	101	2.296.400	100	do pfd	....	Dec. 15, 21	100	230	230	230	230	—10¼
37¾	20½	39¼	27¾	(sh) 3,992,234	N.P.	Lago Oil & Transport	75cQ	Aug. 2, 28	8,500	33½	34⅞	32¼	34⅝	+ 1⅜
18⅛	10	19¾	9⅜	(sh) 1,187.003	N.P.	Louisiana Oil Refining	.....	.....	36,100	16	16½	15½	16	+ ¾
97	85¼	101	78	$4.000.000	$100	do pfd	$1⅝Q	Aug. 15, 28	.....	.....	.....	.....	.....	.....
22¾	12	25½	12½	(sh) 330.000	N.P.	Maracaibo Oil	....	.....	1,500	17¾	18	16¾	18	+ 1
58½	31	44½	33	(sh) 2.316.851	N.P.	Marland Oil Co	....	Mar. 31, 27	73,100	40¾	41¾	38¾	40⅝	+ ⅛
320	200	360	250	$45,942.800	$100	Mexican Petroleum	$3Q	July 20, 28	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	12.000.000	100	do pfd	$2Q	July 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	39	4⅝	(sh) 995.500	N.P.	Mexican Seaboard	....	Nov. 15, 24	43,200	30⅜	32⅛	28⅜	32⅛	+ 2¼
39⅜	25½	37⅜	25⅛	(sh) 1,857.461	N.P.	Mid-Continent	.....	Aug. 1, 27	110,800	37⅜	*37⅜	34¼	37	— ½
105	97	115⅛	103¼	$6,718.000	$100	do pfd	$1.75Q	Sept. 1, 28	.....	.....	.....	.....	.....	.....
3¾	1⅝	7⅜	2⅜	24,060.470	10	Middle States	....	July 1, 23	124,600	4⅝	6¾	4⅝	6¾	+ 2⅛
2¾	1⅜	5⅞	1½	5,739,750	10	do ctfs	....	.....	7,700	3¼	5	3	5	+ 1⅝
1⅞	1	2¼	1⅛	(sh) 3.500.000	N.P.	Pacific Oil	....	.....	53.000	1⅛	1¾	†1⅛	1⅜	+ ⅜
65⅞	40⅛	53¾	38¼	$50.000.000	$ 50	Pan American P. & T.	....	Oct. 20, 27	13,100	44⅝	47½	43½	46¾	+ 1⅜
66⅜	40¼	54⅝	37¾	121,100.000	50	do B	....	Oct. 20, 27	112,700	47⅛	49¾	44¾	49	+ 2½
37⅞	16¾	28⅜	15½	(sh) 400.000	N.P.	Pan American	....	Jan. 30, 27	2,600	17	17¾	17	17¾	— ⅛
18⅞	8	21¾	11½	(sh) 199,370	N.P.	Panhandle P. & R	....	.....	9,800	15¼	15½	14¼	15½	0
83	54	106¼	70	$2,935.200	$100	do pfd	....	July 2, 23	.....	.....	.....	.....	.....	.....
60¼	36¼	44¾	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Oct. 1, 28	110.400	41¾	*44¾	40⅜	44½	+ 2¾
1⅜	½	4¼	½	$29,622,925	$ 25	Pierce Oil	....	.....	99,600	2⅜	4	2⅜	3⅜	+ 1½
24	13½	37⅜	16¼	15.000.000	100	do pfd	....	Feb. 1, 22	37,300	28¾	*37⅜	26¾	33¼	+ 8¾
5½	2½	6⅞	3½	(sh) 2,500.000	N.P.	Pierce Petroleum	....	.....	74,200	4¼	6	4¼	5½	+ 1⅜
33⅞	16¾	26⅞	16	$37,450,850	$ 50	Producers & Refiners	....	Sept. 15, 23	4,400	25	25⅞	24⅝	25½	+ ⅝
50	36⅞	46⅞	41	2,845.350	50	do pfd	....	May 1, 25	80	45	45	44	45	+ 2¾
33⅜	25	27½	19	75,952.250	25	Pure Oil Co	12½cQ	Sept. 1, 28	49,700	25	26	24½	25⅞	+ ⅞
115½	111⅜	115	108	13.000.000	100	do 8% pfd	$2Q	Oct. 1, 28	160	112½	112½	111	111½	— 1
28⅝	25⅜	51⅞	24	$43,764.450	$ 25	Richfield Oil	‡25cQ	Aug. 15, 28	73,800	51¾	*51⅞	48	49¼	— 1¾
54½	44¼	59¼	44⅝	(sh) 585,293	13.40	Royal Dutch N. Y. shares	$1.879	Aug. 3, 28	5,300	58⅞	58⅞	57⅞	58½	0
47⅞	41⅜	51⅜	40⅝	(sh) 67,300	£2	Shell Transport & T	$1.455	July 23, 28	500	51⅜	*51⅜	51⅜	51⅜	+ ¼
31¾	24⅝	31	23¼	(sh) 10.000 000	N.P.	Shell Union Oil	35cQ	Sept. 30, 28	50,800	28	29½	27½	29	+ 1¼
26⅜	14¼	24¾	18¼	$7,208.080	$ 10	Simms Petroleum	....	Apr. 1, 27	12,300	22	22⅞	21⅝	22¾	+ ⅜
22⅜	15	31⅞	17⅜	(sh) 4,503.031	N.P.	Sinclair Consolidated	....	May 31, 24	724,500	28	*31⅞	28⅝	31¾	+ 4
104½	97	109½	102½	$16,310.100	$100	do pfd	$2Q	Aug. 15, 28	1,100	108	108	107⅞	107⅞	+ ⅛
37⅜	24⅛	35⅞	25	27.396.590	25	Skelly Oil Co	50cQ	Sept. 15, 28	53,000	34½	*35⅞	34¼	35½	+ 1¼
60¾	50⅜	63⅞	53	(sh) 13.016.434	N.P.	S. O. California	62½cQ	Sept. 15, 28	29.200	60	60⅜	58⅞	60	0
41⅜	35¼	49	37¾	$610.195,375	$ 25	S. O. New Jersey	‡25cQ	Sept. 15, 28	169,200	45⅞	46½	45⅛	46⅜	+ ½
34⅞	29¾	41½	28¾	431,973,275	25	S. O. New York	40cQ	Sept. 15, 28	96,500	36¾	36⅞	35¼	36⅝	+ ⅝
34⅞	30	57⅞	31½	(sh) 1,206,463	N.P.	Sun Oil	25cQ	Sept. 15, 28	7,800	57¾	*57⅞	55	57¼	+ ¼
101⅝	99	109½	100	$5.000.000	$100	do pfd	$1.50Q	Sept. 1, 28	100	105¼	105¼	105¼	105¼	+ ¾
6½	3⅛	9½	2½	(sh) 1,186.078	N.P.	Superior Oil Corp	.....	Dec. 20, 20	155,000	6⅝	8½	6½	8⅜	+ 1⅞
58	45	72⅞	50	$210.577.050	$ 25	The Texas Corp	75cQ	Oct. 1, 28	234.600	72	73½	69½	69½	— 2½
18⅞	12	17½	12½	8,380.340	10	Texas Pacific Coal & Oil	....	Jan. 3, 28	23,200	14⅜	14½	13⅝	14¼	+ ¼
29⅜	19	30⅝	19⅝	(sh) 2,168,498	N.P.	Tide Water Oil Co	20cQ	Sept. 29, 28	3,200	30¼	*30⅝	29⅜	29⅞	— ⅜
90⅛	85	94½	87	$20,705.200	$100	do 5½% pfd	$1.25Q	Aug. 15, 28	500	91	91	89½	89½	— 1¼
19⅛	15¾	24¾	14¾	(sh) 4,824,766	N P	Tide Water Associated	....	Aug. 1, 27	159,200	24	24½	22⅞	24	— ⅛
90¾	85	90¾	82⅛	$72.745,958	$100	do pfd	$1.50Q	Oct. 1, 28	900	89⅝	90	88⅞	88⅞	+ ⅜
10⅜	3¾	10⅛	7	(sh) 3.842.029	N.P.	Transcontinental Oil	.....	.....	95,700	8½	9	8½	8⅝	+ ⅜
56½	39⅝	57	42¾	$40,841.100	$ 25	Union Oil of California	50cQ	Aug. 10, 28	12,100	51⅞	52	50½	51⅝	+ ¼
127½	94	128⅛	112	31,061.200	100	Union Tank Car Co	$1.25Q	Sept. 1, 28	200	112	112½	†112	112½	+ ½
34½	24½	42¾	26	(sh) 357.197	N.P.	Warner Quinlan	50cQ	Oct. 1, 28	22.900	41⅜	41⅜	39⅜	40¼	— ½
27½	20	29½	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	25cQ	July 20, 28	38,700	28⅜	*29½	27⅝	28	— ¼

*New High †New Low ‡Also extras s-Stock Total Sales 3,687,100

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Sept. 21 Sales	First	High	Low	Last	Change
....	....	4	2⅛	N.P.	Ark. Nat. Gas (new)	8,560	2⅞	2⅞	2⅝	3	+ ⅛
....	....	7½	6¾	N.P.	do pfd	2.040	7⅛	7⅛	7	7	+ ⅛
98¾	80¼	120¼	90¾	100	Colombia Gas	.....	.....	.....	.....	.....	.....
107¾	100	124	107	100	do pfd	.....	.....	.....	.....	.....	.....
15	7½	10	6⅞	10	Devonian Oil	220	7	7½	7¼	7½	+ ½
....	....	15	9	10	Dixie Gas & Util	.....	.....	.....	.....	.....	.....
....	....	95	85	100	do pfd	.....	.....	.....	.....	.....	.....
117½	115	116	115	100	Duquesne Light pfd.	.....	.....	.....	.....	.....	.....
....	....	85	80½	100	Fayette County Gas	.....	.....	.....	.....	.....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas	.....	.....	.....	.....	.....	.....
59¼	37¼	58	48⅝	$ 25	Lone Star Gas	6,713	54½	57	54¾	56⅞	+ 2⅜
....	....	38	36	25	Petroleum Exploration	.....	.....	.....	.....	.....	.....
....	....	.50	.50	....	Phoenix Oil pfd	.....	.....	.....	.....	.....	.....
3¾	3	4	3	5	Pittsburgh Oil & Gas	298	3	3	3	3	0
8	5½	7¼	6	10	Salt Creek Cons	100	6½	6½	6½	6½	0
26½	17	22	16¾	10	Tidal Osage	.....	.....	.....	.....	.....	.....
43	33	33⅜	30½	N.P.	Waverly Oil Wks. A	100	33	33½	32½	33	0
....	....	19	17	$ 25	Wiser Oil	.....	.....	.....	.....	.....	.....

*New high record †New low.

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Sept. 21 Sales	First	High	Low	Last	Change
95	88	132	120	25	Gulf Oil	.....	.....	.....	.....	.....	.....
....	....	115	115	....	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
10¾	5¼	9	5½	25	Leonard Oil & Dev	.....	.....	.....	.....	.....	.....
2¼	1¾	...	...	5	Pittsburgh Oil Dev	.....	.....	.....	.....	.....	.....
31	19	22	16¾	5	Plymouth Oil	1,670	21	21¼	20	21¼	— ¼
6	5	4¾	4	5	States Oil	.....	.....	.....	.....	.....	.....
3⅜	1⅛	6½	2¼	1	Texon Oil & Land	.....	.....	.....	.....	.....	.....
23¾	18	18	15	10	Tidal Osage Non-vgt.	.....	.....	.....	.....	.....	.....

*New High †New Low x Ex Dividend

Cleveland Stock Market

Sept. 21	Par Value	Bid	Asked	Last Sale
Canfield Oil	100	....	x175	175
do pfd	100	x101¼	...	101
Fred G. Clark	10	6½	7	6¾
National Refining	25	35	37	37
do pfd	100	x130	134	132½
Paragon Refining Co	25	18¼	19	18½
do pfd	N.P.	x41½	...	41½
ct'fs of dep	...	...	19½	19

x Ex Dividend.

Oil Dividends

	Amount	Stock of Record Payable	
Cities Service m	10c	Nov. 1	Oct. 15
do stock m	1/40%	Nov. 1	Oct. 15
do pfd. m	50c	Nov. 1	Oct. 15
do pfd. B. m	5c	Nov. 1	Oct. 15
do pfd. BB m	50c	Nov. 1	Oct. 15
Mountain & Gulf q	2c	Oct. 15	Sept. 29
N. C. Texas pfd. q	$1.62½	Oct. 1	Sept. 20
Washington Oil	$1	Sept. 20	Sept. 17

Shreveport El Dorado Pipe Line Co.—W. H. Hoodless, vice president, Pennsylvania Sugar Co., elected a director.

North Central Texas Oil Co.—Initial of $1.62½ a quarter declared on preferred stock. F. R. Thorne elected a director.

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Miscellaneous

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Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 22 Sales	First	High	Low	Last	Change
21⅝	17⅞	22¾	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	500	19⅛	19⅜	18⅞	19	0
21½	17⅝	20½	16¾	.....	£ 1	do cts. non-voting	.....	.....	500	18⅞	19⅜	18⅞	18⅞	— ⅛
3¾	¾	5	1¼	(sh) 500.000	N.P.	Atlantic Lobos	.....	.....	600	3¼	3½	3	3½	— ⅛
6½	2½	9¾	3¼	$ 10.000 000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	49	1.000 000	25	Borne Scrymser	‡$1S.A.	Apr. 16, 28	100	53¼	53¼	53¼	53¼	+ ¼
60	45	76	58	10 000 000	50	Buckeye Pipe Line	‡$1Q	Sept. 15, 28	200	63	67	63	67	+ 3½
126	76½	161	117¼	3.000.000	25	Chesebrough Mfg	‡$1Q	Sept. 29 28	100	139¾	139¾	139¾	139¾	— ¼
22⅝	16¼	23	16	36.123.350	10	Continental Oil	.....	Dec. 15, 27	11,800	17½	17¾	17¾	17¾	+ ¼
137	89	114	88	1.500 000	50	Cumberland Pipe Line	$15	Sept. 15. 28	100	97¼	97¼	97¼	97¼	+ ¼
68½	47	88	64⅛	5.000.000	100	Eureka Pipe Line	$1Q	Aug. 1. 28	.....	.....	.....	.....	.....	.....
13½	3½	13	5	16 000 000	100	Galena Signal Oil	.....	June 30. 25	700	7⅝	7⅝	7⅛	7⅛	— ½
59¾	23	87¾	27	4.000.000	100	do new pfd	.....	June 30. 26	90	80½	80½	80¼	80½	— ½
60⅛	35½	89¾	35	2 000,000	100	do old pfd	.....	June 30. 26	300	80½	80½	80	80¼	+ ¾
68½	54	84⅛	60	73.685.700	25	Humble Oil & Refining	‡30cQ	Oct. 1. 28	23,500	83¾	84⅝	81⅞	82	— 1⅛
182	123¾	245	176½	20.000.000	100	Illinois Pipe Line	$6S.A.	June 15, 28	350	222	222	217	217	—10
64¾	37¾	76½	56¾	(sh) 6.591.458	N.P.	Imperial of Canada	‡25cQ	Sept. 1. 28	5,600	75⅞	80½	74½	79½	— 3⅝
94½	61	89½	74⅞	$ 5.000.000	$ 50	Indiana Pipe Line	‡$1Q	Aug. 15. 28	300	81	82¾	81	82¾	+ 1⅝
39	28¼	45¼	35	(sh) 7.123.544	N.P.	International Petroleum	25c	June 30. 28	44.500	39¼	42¼	39¼	41	+ 1
24	13¼	32⅜	19⅜	6.363.350	12 50	National Transit Co	‡25cQ	Sept. 15. 28	9,800	21	22¼	21	22¼	+ 1¼
44½	31¼	59⅜	37½	5.000 000	100	New York Transit	.....	July 15, 26	500	52¼	59	52¼	59	+ 5½
100	70	125	56½	2.000 000	50	Northern Pipe Line	(a)$3S.A.	July 2 28	50	62¼	62¼	†56½	56½	0
67⅞	52	68¼	58	60 000 000	25	Ohio Oil Co	50cQ	Sept. 15. 28	22,100	62½	63⅞	60¾	63⅞	+ 2¼
39	12	84	28	10.000.000	25	Penn Mex Fuel	$1.25	May 31. 28	700	37	38	36¼	37⅝	+ ⅝
55⅛	45⅜	56	46	60.479 000	25	Prairie Oil & Gas	.....	Aug. 31. 27	10.100	47¾	49	47⅝	49	+ 1⅜
190	132	223	172	81.000.000	100	Prairie Pipe Line	$3 50Q	July 31, 28	1,300	188½	191¾	188½	189	+ ½
201½	175½	186	167	4.000 000	100	Solar Refining	$5S.A.	June 20 28	.....	.....	.....	.....	.....	.....
27¼	15½	35⅞	12	1.000.000	10	Southern Pipe Line	$2	Dec. 1. 27	.....	.....	.....	.....	.....	.....
41½	35	53	36¾	20 000 000	25	South Penn Oil	‡50cQ	Sept. 29, 28	3,000	50	50⅛	49¾	50⅛	+ ⅜
83	55½	100¾	70	3,500 000	100	South West Pa. Pipe Lines	$1Q	Oct. 1, 28	100	80	80	80	80	— 1¾
81½	64⅝	83⅝	70⅞	230.788.513	25	S. O. Indiana	‡62½cQ	Sept. 15, 28	26,700	77⅜	77⅞	75⅜	77½	+ ⅛
20⅞	14⅝	27¾	15	8.000 000	25	S. O Kansas	.....	June 16. 24	5,100	22	22¼	21	21	— 1
130	111½	136¼	122¼	17.103 011	25	S. O Kentucky	$1Q	Sept. 29, 28	4,600	126⅞	129⅝	126⅞	129½	+ 3¼
49½	40	45⅞	39⅜	4.601 100	25	S. O. Nebraska	63cQ	Sept. 20 28	100	43⅝	43⅝	43⅝	43⅝	+ ⅛
87½	72	85½	71	14.000 000	25	S. O. Ohio	62½cQ	Oct. 1. 28	2,400	84¾	*85½	82	85½	+ 1½
122	117¼	125	117	7.000.000	100	do pfd	$1 75Q	Sept. 1. 28	.....	.....	.....	.....	.....	.....
21	14½	26	16	861.466	25	Swan Finch Co	30cQ	June 30. 28	.....	.....	.....	.....	.....	.....
.....	.....	87⅛	72	126,154.100	25	Vacuum Oil	75cQ	Sept. 20, 28	11,500	81⅞	82¾	81¼	82	+ 1

*New high †New low xEx dividend ‡Also extras. (a)$50 Special Sept. 1, 1928.

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Sept. 22 Sales	First	High	Low	Last	Change
2⅛	.55	1½	.65	$ 5	Amer. Con. Oilfields	12,500	70	75	67	71	+ 2
7½	2¾	6⅝	3½	N.P.	Amer. Maracaibo	5,800	4⅞	5	4⅝	4⅞	+ ⅛
2¾	1	4	2¼	$ 10	Argo Oil	4,500	3	4½	3	4⅜	— ⅛
9¾	6¾	10¼	7⅜	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	11	3⅞	.....	Barnsdall deb. war	44,300	11	11	8	10	— ¾
40	20½	42	32¾	N.P.	British American	1.000	42	42	42	42	+ 2½
28¾	15½	23⅞	12½	25c	Carib Syndicate N	9,800	12⅞	15½	12⅞	15	+ 2
.....	.....	.....	.....	.....	do ctfs. of dep	.....	.....	.....	.....	.....	.....
58¾	40¼	71¼	54	$ 20	Cities Service	16,500	67½	68⅛	67½	68	0
95⅜	87	103½	94½	100	do pfd	1,800	99⅝	99⅝	99	99⅜	— ⅜
8⅞	7¾	9⅝	8⅞	10	do pfd. B	100	9⅜	9⅜	9⅜	9⅜	+ ⅛
29¼	22½	94	28¼	10	do banker's shares	200	33¾	33¾	33¾	33¾	+ ¼
3⅞	1⅛	2¼	1⅛	1	Colombia Syndicate	5,100	1⅜	1½	1⅛	1¼	— ⅛
9¾	6¾	8⅛	6⅝	10	Consolidated Royal	100	6¾	6¾	6¾	6¾	0
14⅞	9½	17½	10	N.P.	Creole Syndicate	19,900	12⅞	13½	12⅜	13⅜	+ ⅜
3	.50	3¼	.76	N.P.	Crown Central	300	1⅝	1¾	1½	1⅝	0
12	4	30¼	8¼	N.P.	Darby Petroleum	3,500	21⅝	21⅝	20⅜	20½	+ ¼
11½	4	13½	7⅞	.....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	22	1	N.P.	Derby Oil & Refining	400	1½	1½	1½	1½	0
16¾	4	15½	7½	N.P.	do pfd	.....	.....	.....	.....	.....	.....
3¾	1	2	1	N.P.	Gibson Oil	.....	.....	.....	.....	.....	.....
2	.40	.53	.15	N P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅜	$ 25	Gulf Oil Corp	82	126½	128	123¾	126¾	+ ½
2⅛	.80	7⅞	1	10	Intercontinent Pet	148,700	1¼	2⅜	1¼	2⅜	+ 1
2¼	1⅛	3	1¼	N P.	Kirby Petroleum	2,900	1½	2	1½	1⅞	+ ⅜
10⅛	5⅛	9⅜	5⅛	N.P.	Leonard Oil & Dev	6,600	6	6⅜	6	6	— ⅜
27½	20	32¾	20	N.P.	Lion Oil & Refg	13,500	30⅛	31⅞	30	31⅛	+ ⅝
59¾	37	57⅝	48¾	$ 25	Lone Star Gas	6,200	54¾	*57⅝	54	57⅞	— 1
2⅛	.80	1⅞	.54	1	Magdalena Synd	17,500	66	69	50	60	—10
21⅛	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	36½	N P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1¼	40¼	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4	N.P.	Mexico-Ohio Oil	200	4¾	4¾	4½	4½	0
1⅛	1	1⅛	.76	$ 1	Mountain & Gulf	900	82	82	82	82	— 1
29¼	22¾	28⅝	21½	10	Mountain Producers	3,400	22⅛	22⅜	21¾	22⅜	+ ⅛
5⅛	4⅝	5⅝	4¼	5	New Bradford	1,200	4½	4½	4½	4½	0
6¼	4	5½	3	10	New England Fuel	1,200	3¾	4¼	3	3	— 1
16	9¼	11⅜	7⅛	1	New Mex. & Ariz	.....	.....	.....	.....	.....	.....
13⅞	9	15½	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
.....	.....	40	39⅛	.....	North Amer. Oil Cons	.....	.....	.....	.....	.....	.....
12¾	9½	13¼	10¾	N.P.	North Cent. Texas	400	12¼	12¼	12	12	— ¼
23⅞	21¼	.....	.....	.....	Okla. Nat. Gas ctfs	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2¼	N.P.	Pandem	800	2⅜	2⅞	2⅝	2¾	— ⅛
12⅜	7	15⅝	8½	N.P.	Panapec Oil	14,700	12⅞	13⅜	12½	12⅜	— ⅛
9	7⅛	20	10⅜	$ 25	Paragon Refg	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13¼	5⅛	7¾	5⅛	10	Pennok Oil	.....	.....	.....	.....	.....	.....
.....	.....	4⅛	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24¾	7	14½	8	25	Red Bank Oil	500	9	9⅛	9	9⅛	0
15½	3¼	13	4⅛	N.P.	Reiter-Foster	10,500	10⅜	10½	9	9⅞	— ⅜
28¾	15	31½	18	$ 25	Richfield Oil pfd	1,000	24⅛	25½	24⅛	25⅜	+ 1
.....	.....	23	7½	.....	do warrants	.....	.....	.....	.....	.....	.....
7	4½	9⅜	4⅝	N.P.	Ryan Consolidated	100	5¼	5¼	5¼	5¼	— ⅛
8	5¼	7¾	5¾	$ 10	Salt Creek Cons	800	6¼	6⅜	6⅛	6⅜	+ ¼
35½	27¼	35	23½	10	Salt Creek Prod	3,000	25¾	26	25	26¼	+ ¼
7	1¾	3⅛	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
.....	.....	4⅝	3	1	Texon Oil & Land	27,900	3⅜	3⅝	3⅜	3⅞	+ 16
26½	17	22⅜	13	10	Tidal Osage	1,300	18¼	18⅞	18	18⅞	+ ⅜
23¾	15	21¼	13⅛	10	do non-voting	900	17½	18⅜	15¾	18	+ ½
92	63½	87	75	100	Transcontinental pfd	200	80	80	80	80	+ ¼
23¼	7	53½	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7¾	4½	6⅝	4¾	5	Venezuelan Petrol	800	4⅞	4⅞	†4¾	4¾	— ⅛
32¾	19½	25	15¼	N.P.	Wilcox Oil & Gas	300	17	17	17	17	— ¼
8	4½	8¼	4⅞	$ 1	Woodley Petroleum	600	5⅛	5⅛	5	5	0
6	1¾	8¾	2⅛	25	Y Oil & Gas (new)	720	4⅞	5⅛	4⅞	5	+⅛

*New High †New Low xEx Dividend

New York Curb Bonds

Week Ending Sept. 21

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	106	104¾	105⅝	0
Cities Service 5s '66	94⅞	93½	94	— ¾
Cities Service 6s '66	103½	103⅜	103⅜	0
Cities Serv. G 5½s '42	93⅞	93½	93½	— ¼
Cont. Oil 5¼s '37	95½	95	95½	+ ½
Galena Oil 7s '30	100⅝	100⅛	100⅝	0
Gulf Oil 5s '37	100⅞	99⅜	100⅞	+ ⅝
Gulf Oil 5s '47	100⅛	100⅛	100¼	+ ¼
Independent Oil 6s '39	104⅜	102⅛	104	+2
Richfield Oil 6s '41	141	135	140	0
Richfield Oil 5s '31	103	100¾	101½	+ ¾
Sun Oil 5½s '39	101¾	100½	100½	— ½
Trans. Con. Oil 7s '30	107	105⅞	106⅞	+ ⅞
Valvoline Oil 7s '37	103	101	103	—4
Warner Quinlan 6s '42	116	111	113	—2¼

New York Bonds

Week Ending Sept. 21

	High	Low	Last	Ch'ge
Assoc. Oil gold 6s	103	102¾	103	+ ⅛
Atlantic Refg. deb. 5s	101¼	101	101	— ⅛
Barnsdall Corp. 6s	115⅝	110¼	113	—1
Barnsdall Corp. 8s ex-war.	93⅞	92½	93¼	+ ¼
Cal. Pet. 5s	102⅝	101⅛	101¼	— ⅝
Cal. Pet. 5½s	103	102½	103	+1
General Asphalt 6s	110½	107½	110	+1
General Pet. 5s	100¾	100½	100½	+ ⅛
Humble Oil & Refg. 5s	100	88⅜	99⅞	+ ⅛
Humble Oil & Refg. 5½s	101⅜	101	101¼	0
Mid. Cont. Pet. 6½s	105⅛	105	105	0
Pan Amer. P & T 7s	104⅜	104⅞	104⅞	— ⅛
Pan Amer. P & T 6s	103¼	102½	103¼	+ ¾
Pan Amer. P & T 6s	94½	94	94½	+ ½
Phillips Pet. 5½s	92¾	92	92¾	+ ½
Pure Oil 5½s	99	98⅛	99	0
Shell Union Oil 5s	98⅛	96¾	98⅛	+1⅛
Simms Pet. 6s	103¾	101½	103¾	0
Sinclair Con. Oil 7s	102	101½	101⅝	— ⅛
Sinclair Con. Oil 6½s	99⅞	99¼	99⅞	+ ½
Sinclair Con. Oil 6s D	98⅞	98⅛	98⅝	+ ⅛
Sinclair Crude Oil 5½s	98	97½	97¾	0
Sinclair Pipeline	94¼	93½	93⅝	+ ⅛
Skelly Oil 5½s	92½	92	92½	+2
S. O. N. J. 4½s	103	102½	102⅞	+ ¼
S. O. N. Y. 5½s	96	95	95	— ⅛
Union Oil of Calif 6s D	109⅞	109½	109¾	0
Union Oil of Calif 5s A	102	102	102	+ ¼
Union Oil of Calif. 5s C	98¼	98	98⅛	+ ½
White Eagle O & R 5½s	100	98	98	— ½

The Texas Corp.—Notice sent minority stockholders of California Petroleum Corp. that offer to exchange two shares of California Petroleum for one share of Texas expires Oct. 15. The original offer of exchange was made last January.

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